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THE FAR EASTERN REVIEW
ENGINEERING COMMERCE FINANCE

BOMBAY'S COTTON INDUSTRY

By George Bronson Rea

A GREASY DEAL

SHALL BRITAIN STAND ALONE?

THE RED MENACE TO ASIA

WANHSIEN

TELEPHONE RECONSTRUCTION IN TOKYO AND YOKOHAMA

SHANGHAI-NANKING LINE

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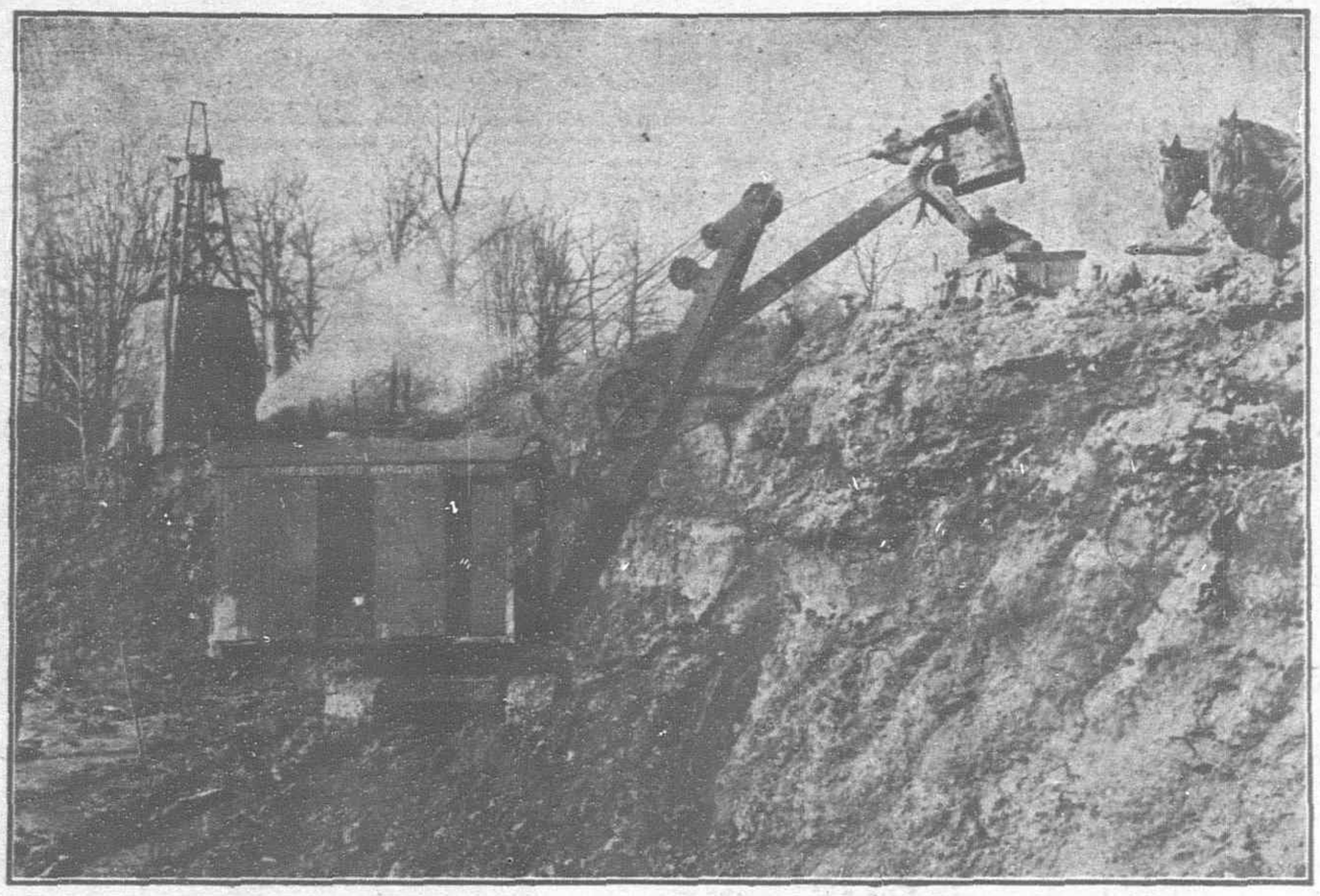

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The Far Eastern Review

ENGINEERING FINANCE COMMERCE

VOL. XXII SHANGHAI, SEPTEMBER, 1926 No. 9

Tightening the Noose Around Japan's Neck

While Europe Squabbles at Geneva, Forces are at Work to Drive Japan into a Corner and Compel her to Fight for her Right to Exist

WITH a population of nearly eighty millions, increasing at the rate of 700,000 a year, Japan is denied an outlet for her surplus by the exclusion laws of the United States, Canada, Australia, New Zealand and South Africa. The extension of the Asiatic Exclusion Act to the Philippines, prohibits the Japanese from colonizing or owning land in this natural nearby outlet. Extraterritoriality in China operates to prevent the Japanese from owning or leasing land outside the treaty ports. China is closed to Japan as an outlet for her surplus population. Russia opposes the entrance of the Japanese into Siberia.

The Japanese are a race set apart. The principle of equality was denied to them at the Paris Peace Conference and driven home by the American and British exclusion laws. Facing an unfriendly "white" world and a hostile Asia, Japan has accepted the situation by trying to absorb her surplus at home. Handicapped by the terrible calamity which wiped out her metropolitan district and chief port and the enormous financial burden of reconstruction, Japan has found the capital to expand her industries and encourage foreign trade in order to solve her pressing problem in a peaceful manner.

The world has erected a ringed fence around the Isles of Nippon. To eat, to live, her people must work in order to earn the money by the sale of their manufactured products abroad, that will enable them to pay for the imported food, vital to their existence. Under these conditions, it is an international outrage to apply the industrial standards of more favored countries to a people who must work night and day in order to exist. Yet Japan, in a desire to live in peace with the rest of the world and co-operate for the betterment of working conditions, has accepted the discriminatory labor conventions drafted by more fortunate countries for the express purpose of placing a noose around her neck.

Denied equality, discriminated against because of their color, their customs and their thrift, the more powerful and advanced nations now insist upon imposing the principle of industrial equality upon the Japanese in order to destroy their power of competition. Notwithstanding the handicap of these unfair conventions, Japan has organized her industries, applied scientific management and other measures of industrial efficiency, which enables her to keep her head above water. In spite of the obstacles placed across her path, Japan has succeeded in expanding her export trade in cotton yarns and the coarser grades of cotton cloths. Her people have worked day and night with their backs against the wall to cut down an unfavorable trade balance at a time when they were staggering under the burden of reconstruction. If conceded equal opportunity to trade they look forward to further success in the struggle for existence. The principle of the Open Door to world trade is vital to the continued peaceful existence of Japan. Deny to her these rights by the imposition of discriminatory duties on her manufactured products, and Japan goes under.

At this juncture, the Egyptian Government at the behest of Greek interests, imposes a discriminatory duty (taking effect upon its enactment) upon Japanese and Chinese leaf tobacco, killing at one stroke of the pen a profitable trade built up after several years of painstaking effort. One outlet for Japan's activities was closed with a bang.

The Bombay Cotton Mill Owners, probably the most inefficient body of industrialists in the world, are now moving heaven and earth to induce the Government of India to denounce the Indo-Japanese commercial treaty and impose a discriminatory duty against Japanese cotton yarns and textiles. An Indian Tariff Board is conducting a searching inquiry to ascertain how much protection, if any, is required to safeguard the Bombay mills against Japanese competition. If, as a result of its findings, a countervailing duty is imposed, it will not be long before some other government will invent similar specious and plausible reasons for imposing further discriminatory duties against other lines of Japanese products, and, with their trade outlets cut off, the people of Japan, will either have to starve—or fight.

Japan is slowly being driven into a corner, while World attention is riveted on European politics.

Her investments in China are imperilled by a flagrant disregard for treaty obligations on the part of the warring factions; her trade outlets and opportunities in that country are being rapidly curtailed. Discriminatory tariffs on her products by other countries at this time is a sure way to invite trouble.

The following articles written from Egypt and India are intended to invite serious attention to a phase of world affairs more far-reaching in their consequences than the League squabbles now engaging the attention of the Powers in Europe. I have not attempted to defend Japan against the charges of "unfair competition." A nation placed in her position needs no defence.—G.B.R.

Bombay's Attack on Japanese Cotton Goods

The Inefficiently Managed Parsee Textile Industry of India Endangers Anglo-Japanese Relations by an Invidious Propaganda against Japan

The League of Nations Labor Convention Used as a Pretext

By George Bronson Rea

Mr. George Bronson Rea, publisher of the "Far Eastern Review," has written a series of articles on the attack on Japanese textiles by the Bombay cotton mill-owners. These articles deal not only with the specific subject under consideration, but describe accurately, the commercial, industrial and political life of Bombay and the effect of the concentration of the wealth of Bombay in the hands of the Parsees upon the international relationships between India and Great Britain with such rising commercial powers as Japan. Mr. Rea's articles shed a new and brilliant light upon a subject which is to-day of paramount importance in Asia.

BOMBAY, August 25: If it takes three Jews to beat a Greek; three Greeks to do an Armenian and three Armenians to put anything over a Copt; I wonder how many Copts are required to hornswaggle a Parsee? In my article from Egypt, I described how the subtle Copt, working in partnership with the slippery Greek had put over a greasy deal which wiped out the Japanese and Chinese tobacco trade with Egypt through the imposition of a discriminatory duty and handed the trade over to Greece. A few weeks in India, tells me that the crafty Copt has nothing on the Parsee wizard, who holds the prize for commercial cunning and surpasses even the Red Gang of Moscow in unblushing effrontery. The Parsee modestly disclaims this distinction and passes the buck by intimating that he has much to learn from the more artful Chinese. I suppose as we journey eastwards and put it up to the suave Son of Han, he in turn, will expatiate on the futility of competing with the Japanese.

The Genial Parsee

The evidence, however, is against the disciple of Zoroaster. There are only about 85,000 Parsees in the world and half of them are domiciled in Bombay. Here, the Parsee is ubiquitous. The British may think Bombay belongs to them. They rule it, but a few Parsee families own it and graciously permit the British Governor and a very few others to reside in the aristocratic quarter of Malabar Hill originally set aside for European use. This exclusive residential section is now built over with the palaces of the Parsee millionaires who erect stuffy flats and apartment houses in the lower districts of the city and rent them to Europeans to live in at fabulous prices.

The Parsees knew a good thing when it came their way and when the English traders appeared at Surat in 1610 they immediately identified themselves with the newcomers as servants and business go-betweens. They followed the Honourable East India Company to Bombay when that port was selected as the trading headquarters of Western India and from this point of vantage soon established themselves as the principal traders in Indian commodities. As practically all the Malwa opium exported to China and other points passed through the port of Bombay, the Parsees were not long in acquiring control of this profitable business. They followed the "John Company" to China when the trade of that vast empire was a monopoly of the Bombay Factory and out of the huge wealth amassed under this partnership in the opium traffic was laid the foundation of Bombay's prosperity and the immense fortunes of the few Parsee families and their friends who now own the city body and soul. For over a century, Bombay collected its toll of millions from China's debasement and although the British received a fair share of the proceeds (and all the odium attached to the trade) the great bulk of the profits went into the pockets of their Parsee partners. Bombay waxed fat and purse proud at the expense of China and when the game was played out and the orange sucked dry by the abolition of the opium trade, the Parsees, retired to their stronghold on Malabar Hill and left the British to pay the penalty that the long-suffering Chinese are now exacting for past grievances.

Out of the immense profits of that iniquitous trade, the Parsees created the Bombay cotton mill industry for the express purpose of further exploiting the Chinese market, and to the millions which rolled into the city as the result of these two trade monopolies Bombay owes its present proud position in the British Empire. The development of Japan's textile industry under efficient management gradually loosened the grip of Bombay on its favorite field for exploitation. Naturally, Bombay cannot find words sufficiently strong enough to express its opinion of the people who butted in and took away its pet source of revenue.

Bombay's Grouch

So Bombay has a grouch. In fact, Bombay always has a grouch. When it can no longer suppress its feelings it follows the traditional Asiatic custom of going out on the highway and reviling

A REPRESENTATIVE GROUP OF BOMBAY MILL AGENTS, 1926.

FROM LEFT TO RIGHT:—Mr. Lalji Naranjee, Mr. H. P. Mody, Mr. S. D. Saklatwala, Mr. N. B. Saklatwala, C.I.E., The Hon. Mr. Manmohandas Ramji, The Hon. Sir Dinshaw Wacha, Kt., Mr. A. Geddis, Mr. Chamanlal Parekh, Mr. J. B. Petit, Mr. F. F. Stileman, Mr. J. A. Kay, Mr. H. H. Sawyer and Mr. Madhowji D. Thackersey.

the family pedigree of all and sundry who have even remotely incurred its displeasure. Bombay gets fed-up about once a year over something or other connected with its principal industry and proceeds to cuss out the British raj in flowery but effective Babu phrases. Its favorite cause for complaint arises from a suspicion that the Indian Government is in secret alliance with Lancashire to maintain the country in perpetual servitude to the British textile industry. It grows hysterical over the free silver coinage embargo and pours out the vials of its wrath on the Government for interfering with the exchange when it is in Bombay's favor; it frothed at the mouth over the cotton excise duty and went into such a prolonged epilectic fit over this injustice that Delhi was finally frightened into abolishing it; it yells its head off over the tariff imposed on imported materials and stores that find their way into the cotton mills; it grows frantic over racial discrimination against the Hindus in South Africa and other parts of the Empire and in general indulges in such a prolonged *wallah-wallah* that the British will yield almost any point to stop the noise. Before the annual outburst of Bombay's indignation, the British press preserves a discreet silence, knowing that when the storm blows over, India will again settle down to a meek acceptance of the fate which has transformed the old Hindu and Moghul empire into the key-stone of British imperialism.

No British writer likes to admit that his country has ever been unjust to India. Whatever has been done in the past to assure Lancashire's supremacy in the Indian market, has been a political mistake, perhaps, but never intentionally unfair. Even the excise on cotton cloth which equalled the customs duty on imported British goods was imposed out of an altruistic regard for the welfare of India. The long and tangled history of British economic policy in India constitutes the strongest proof of Britain's absolute disinterestedness and impartial fairness towards those whose destinies are confided to her care. So when Bombay threw its annual conniption fit over some fancied phase of British unfair competition, the Empire press soft-pedalled the facts and emphasized some other complicated world problem as front page news.

India was preserved to the Empire by the removal early this year of the Cotton Excise tax and it began to look as though the new Viceroy and his staff would be permitted to turn their attention to other pressing problems and pass a peaceful summer season at Simla. But no sooner was the Excise tax abolished than Bombay threw another fit and let out a wail before which all previous fits and wails faded into insignificance. This time it was not unfair British competition with the infant industries of India or ruthless exploitation of the oppressed ryot which aroused the virtuous indignation of Bombay, but Japan's "inhumanity" towards its cotton mill workers, compelling these "down-trodden slaves of the loom" to labor ten hours a day in double shifts in open defiance of the international eight-hour day resolution and abolition of night work for women and children passed at the Labor Conference at Washington in 1919. Now nearly eighty per cent. of Japan's textile workers are women and her failure to adopt the Washington resolution exposed them to all the alleged evils, temptations and abuses commonly associated with night work in factories throughout the world. Because of Japan's delay in ratifying and putting into effect the international agreement, Bombay now declares it is losing its markets to Japan. Its high conception of commercial morality, its reputation for humanitarian treatment of labor and regard for the virtue of women and well-being of children, arouses its just indignation and compels it to denounce this grossly unfair competition with sweated labor and to cry out loudly for protection.

For the first time in the long history of Anglo-Indian trade relations, the British press has jumped into the fray as the champion of India, whose government was one of the first to ratify the Washington resolutions. Parrot-like, the British press echoed the battle cry of Bombay and by intentional reiteration of "Japan's Unfair Competition" and "Japan's Sweated Labor," in every article or reference to the Indian cotton controversy, has educated public opinion to associate Japan with these practices in the same way that pre-war propaganda turned the world against Germany because she failed to adhere to the standards of commercial ethics laid down by the British.

Japan's Commercial Expansion

Japan has seriously cut into British trade in China, edged her way into India and is steadily expanding her markets in the Near East and Africa. Although Japan's competition is confined exclusively to the coarser lines of piece goods which do not conflict with the finer grades turned out by Lancashire, and Japan's proportion of the trade is only a very small percentage of the total, the British trader already sees in this a menace. In Anglo-Indian eyes, Japan's failure to give immediate effect to the eight-hour-day agreement and her practice of employing women on night work therefore constitutes a most unfair advantage over those countries whose humane governments hastened to ratify the convention. Now to date, only five such humane governments have ratified these resolutions; to wit, Bulgaria, Czecho-Slovakia, India, Greece and Rumania, but as Japan is the only nation which competes with India, she is singled out for special attention and vituperation.

Bombay's Road to Ruin

Inefficiency; Mismanagement

No doubt a depreciated exchange has enabled the Japanese manufacturers to compete in India: but surely, with the raw material at their door and the whole of India as a market for their production, Bombay mills should be able to hold their own. During their period of prosperity some of them were too lavish in distribution of profits and sufficient financial provision was not made for the adverse times which come to most industries. With economical and intelligent management there is no reason why Bombay mills should not return to prosperity."—*Sir Charles C. McLeod, Chairman of the National Bank of India.*

Impractical Labor Regulations

Bombay absolutely declines to accept the explanation that Japan is well within her legal rights in any attitude she may adopt towards the International Labor draft convention. No country is obliged to enforce such conventions until they have been formally ratified, a purely private and voluntary matter for each government to decide according to its own views. Should the Government of any state decide against ratification no legal obligations rest on that country to secure the enforcement of the convention. Only in the event that ratification takes place and the government fails to pass legislation for the observance of the convention, is any other ratifying state entitled to file a complaint with the International Labor Office and even then there is no force behind this organization to punish offenders. As Japan has seen fit to delay formal ratification until such time as she is prepared to meet the industrial revolution created by the application of the new laws, no other nation has the right to complain or demand that pressure be brought to bear upon her to place them in operation. Only five countries, as noted above, have ratified the convention to date; convincing evidence that the resolutions were drawn up to favor those states already enjoying a fixed and dominant position in the industrial world.

It is not only complicated and impractical but highly indefensible to apply the foot-rule of American or British industrial efficiency to other countries burdened with complex problems which cannot be solved by a common denominator laid down by any international conference. The folly of such a program is seen in the present coal strike in England where an increase in working hours is held to be the only alternative to industrial ruin.

It is evident in Italy, where Mussolini in a supreme effort to avoid economic disaster by increasing national production, has defied the canons of international labor and legalized a nine-hour

Reproduced from "Labor and Housing in Bombay"

Types of Women Employed in the Bombay Cotton Mills.

working day. The government which blindly accepts these international conventions without safeguarding reservations is simply tightening the rope that was intentionally placed around its neck in order to strangle its power of competition with more firmly established rivals. If British labor succeeds in enforcing its conception of a proper working day, when half-starved competitors are working overtime to capture its markets, the future of industrial Britain is not difficult to forecast. Under such conditions, what nation would dare challenge the right of the British Government to legalize a nine or even a ten-hour working day? What nation would have the audacity to denounce the application of the new nine-hour-day in Italy? It is excellent sport to pick on Japan whose power to retort is weakened by the reluctance of the English language press sympathetically to present her side of the case, but there would probably be an exhibition of international fireworks in which the League of Nations would go up like a sky-rocket if the same attacks were directed against the fiery Leader of New Italy.

The Brazen Face of Bombay

The Indian press campaign against Japan has been in full swing since the golden days of the war-boom came to an abrupt termination and the Bombay cotton mills once more faced the stern reality of earning dividends on watered capital, against organized and efficient competitors. Although the volume of Japanese cotton goods imported into India constitute only about three per cent. of the total consumption of manufactured cotton goods in that country, to offset which Japan purchases over one half of the raw cotton exported from India, the Bombay mill owners in order to cover up the corruption, inefficiency, mismanagement and a host of other evils connected with their business, have diverted public attention from their own shortcomings by a vicious propaganda directed against Japan's failure to give effect to the Washington labor convention.

As early as December, 1921, when the anti-Japanese movement was initiated, the Japan Cotton Spinners Association sent a statement to the Indian Government setting forth the actual conditions surrounding the industry in Japan followed by further explanatory communications from its Bombay agent to the local mill owners' association. All of these extremely courteous and informative documents were brushed aside by the millowners in a boorish exhibition of ill-temper almost insulting in the tone of the replies. Despite repeated invitations, not one representative of the Indian cotton industry has visited Japan in order to investigate first hand and report on the state of the industry in that country, the mill owners preferring to base their charges on newspaper articles and one-sided evidence supporting their views. As noted above, this campaign was successful in forcing the Indian Government to abolish the cotton excise tax early this year but as this measure obviously could bring only partial relief to a notoriously mismanaged and poorly located industry, the agitation against Japan was immediately renewed with surcharged venom in order to induce the Government to impose countervailing import duties upon Japanese cotton goods that would offset the advantage enjoyed by the Japanese mills in working double shifts. Bombay had emerged victorious from one campaign and evidently anticipated that the Indian Government could be bully-ragged into accepting further orders from the Parsee oligarchy. In attempting to lay down the law and force the hand of the Government they met with a well merited rebuke. Read the following orders sent to the Government under the guise of a petition from the Bombay Mill Owners' Association:

"My committee suggests that for the specific purpose outlined above (the imposition of a discriminatory duty against Japanese cotton goods) an *ad hoc* committee, including a proportion of textile experts, should be immediately appointed and asked to report without delay. If the Government of India are prepared to agree to this suggestion, this Association would be prepared to render every assistance in order to enable the committee to arrive at accurate conclusions as to the extent of the import duty which should be imposed, *provided any evidence they give is considered confidential.* Though for the past two or three years the textile industry of India has been very adversely affected owing to the depreciating value of the yen, the appreciating value of the rupee and other reasons, my committee do not at the present juncture wish to make any claim for general protection. They consider that if safeguarded from unfair competition, the Indian textile industry will at least be able to retain its home market."

Bombay's Outrageous Proposal

It is not to be supposed from this that Bombay's requests were confined exclusively to penalizing Japan, for we find that its general S.O.S. included:

1. Reduction of railway freight rates on Indian mill-made goods from Bombay to the principal Indian piece goods and yarn markets.
2. Government negotiation with steamship companies to obtain a reduction in freight rates from Bombay to other Indian, African and Levantine ports.
3. Appointment of a trade commissioner to assist in exploring and developing export markets.
4. A scientific tariff devised for the protection of Indian cotton products against all unfair competition.
5. Abolition of import duties on mill stores and supplies.
6. Stabilization of the rupee exchange at 1s. 4d. instead of 1s. 6d. as fixed by the Government Financial Commission.
7. Reduction of municipal, income and super taxes and abolition of the municipal cotton cess of 1 rupee per bale of cotton entering Bombay.
8. Government erection of houses for mill hands.

There may have been something that Bombay overlooked, but to all appearances they are ready to take away everything in the house, even to the red-hot kitchen stove. Our comment on this might seem, somewhat biassed so we will quote what *Capital,*

the leading Indian commercial newspaper of Calcutta had to say when the text of the petition was made public :

"In other words, the proposal put up by the Mill Owners' Association comprised as its three main features, a limited inquiry based upon terms of reference prejudging the whole question at issue ; a packed Committee ; and evidence *in camera*. According to the Mill Owners' Association's own description of their proposals, they demanded not only that the personnel and terms of reference of the Committee of Inquiry should be subject to their approval, but that the Government of India should bind itself in advance to accept any recommendation this Committee put forward. This proposal—put forward by men who unquestionably believed that they were acting in the public interests—must, despite that fact, be characterized as one of the most indefensible bargains ever suggested to a Protectionist Government."

The Government's Rebuke

It is well to note that *Capital* is owned and edited by Englishmen and published in Calcutta, which city, in contrast to the Parsee stronghold, is a monument to purely British enterprise. No Bombay newspaper would have had the courage to point out the above facts in such straightforward words. *Capital* then goes on to say :

"This amazing project was too much even for Sir Charles Innes. The Commerce Member, to his credit, not only denied that any case had been made out for denouncing the Indo-Japanese Convention but further demurred to the millowners' proposal that a Committee to fix safeguarding duties (as opposed to general protection) should forthwith be appointed merely for the purpose of determining the amount of these duties. At Simla, the Bombay millowners' idea that they should supply not only the witnesses, but also the judge and jury, was rejected as a crudity almost beyond conception. With perfect fairness, the Commerce Member added, in replying to the millowners' letter ;

"At the same time, the present difficulties of the mill industry are a matter of much concern to the Government of India, and they are anxious to do what they can to assist the millowners to find the right solution of those difficulties. Their position is that they recognise that the mill industry especially in Bombay city, has been passing through a period of depression. They recognise that the import of Japanese yarn and piecegoods has been increasing rapidly. They recognize that Japanese millowners have an advantage over Indian millowners in that they work double shifts, and they are willing to believe that the working of double shifts in Japan is facilitated by the fact that the employment of women at night is not prohibited. They are prepared to admit, therefore, that there is a *prima facie* case for enquiry. But they hold that the enquiry should be a comprehensive enquiry, and that the whole field should be opened to the body entrusted with it. For protection, whether it be called protection or merely safeguarding, must enhance the price of cotton goods (which is still exceptionally high) for the Indian consumer, and the Government of India are unable to agree to any course that would have this result unless and until the necessity of that course is established by a comprehensive impartial enquiry.

"In their view, diagnosis must precede the prescription of remedies, and they are not yet satisfied that the present condition of the mill industry in Bombay is solely due to competition from Japan."

Nothing could be fairer than this, showing as it does that Bombay's anti-Japanese ravings are not wildly supported by a government charged with maintaining friendly foreign relations and safeguarding the interests of the home consumer. The Indian Government has therefore wisely met Bombay's preposterous demands by instituting a comprehensive inquiry into all phases of the Indian cotton industry for which purpose it has appointed a Special Tariff Board to hold hearings and take evidence in the various mill centers. This body has prepared a questionnaire containing 129 searching queries (many of which will be found most embarassing for the millowners to answer) and is now sitting at Bombay. The Board is not expected to conclude its labors and submit its report until early next year and in the meantime there is a lull in the anti-Japanese campaign.

The final report of the Special Tariff Board will be read with considerable interest. Its findings and recommendations will be of still greater interest as they will clear the atmosphere of persistent rumors circulated in Bombay to the effect that the anti-Japanese campaign is the outcome of a secret understanding between Bombay and Lancashire to eliminate Japan as a competitor in India and Eastern Africa. Although the Bombay association as a body is leading the attack upon Japan, there are many individual millowners, shareholders and others prominently connected with the industry and commercial life of the city, who heartily disapprove of the questionable methods employed to cover up the prevalent Indian incompetency and mismanagement. In fact, there is no real anti-Japanese sentiment in India, *amongst the Indians*, who frankly state that the present campaign is engineered from England for the benefit of Lancashire.

A Put Up Job ?

These men say that the president of the Bombay Mill Owners' Association (Mr. C. N. Wadia) went to England last year in order to induce Lancashire to help Bombay in its fight to get the cotton excise tax abolished. Now Lancashire has never been known to wax philanthropic over any measure for the relief of India, and it is taken for granted, that the president of the Bombay association had something to offer in return for such a departure from an old established policy, and, whatever it was, it found expression in renewed agitation against the Japanese. Now whatever truth there is to this report it is a fact that Lancashire did support Bombay and that the president of the Bombay association was knighted in the last Birthday Honors List. I do not like to circulate theories or unsupported statements in matters of such importance as this, but there is a certain political verisimilitude to the above explanation, that may help to explain what is otherwise rather obscure. It is a fact that Japan does not compete so much in India with the local mills ; for as in Egypt, the Near East and Africa, her trade gains seem to be at the expense of Lancashire.

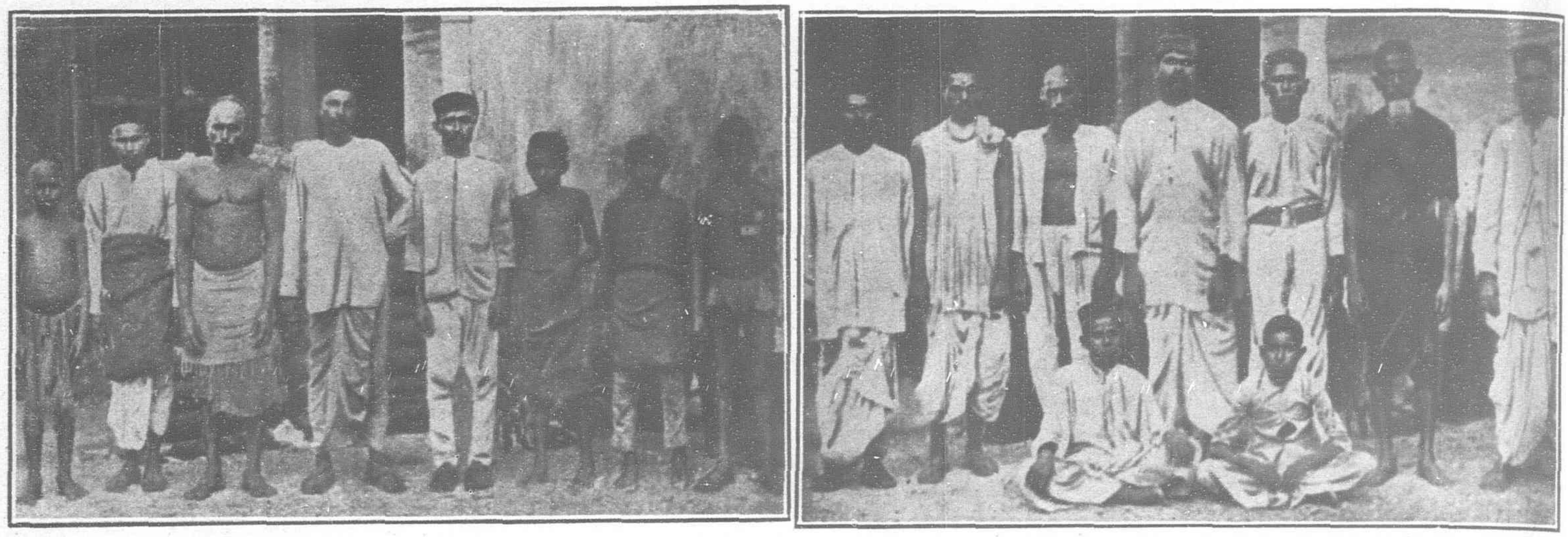
Now it is alleged that in return for Manchester's support to the abolition of the Indian cotton excise tax, the head of the Bombay mill association undertook to continue the anti-Japanese campaign, and although it was realized that the Government of India could not accede to the demand for a discriminatory duty and denouncement of the Indo-Japanese treaty without inviting diplomatic squabbles and tariff retaliations, the publicity given to the controversy would prepare the public mind for a general protective tariff which would apply to all countries alike. India would then consent to Imperial Preference on British textiles, which would hand over to Lancashire the business that Japan had so painstakingly built up and eliminate her altogether from the Indian market. There is probably nothing behind this talk, but, after all, it is about the only way that Japan can be effectively frozen out of the Indian textile trade with corresponding benefit to Lancashire. At any rate, Mr. Wadia was knighted and despite the fact, that his own mills are well-managed and pay handsome dividends, he stands forth as the exponent of arguments belied by his own experience. Out of 82 mills in Bombay, only eight paid dividends of 20 per cent. or over in 1925. The C. N. Wadia & Company mills were one of the eight. There may exist good reasons why a business man as head of an association should champion the cause of his less efficient colleagues, but it must be embarassing, nevertheless, to give the lie to his arguments by his own private business methods and returns.

Britain's Weakness

Individuality; Disorganization

"It is deeply to be regretted that we cannot adopt means for keeping such a splendid industry as ours in a state of administrative efficiency. We need not fear Italy, Japan, or any other country on the productive side ; all we are wanting is a little common-sense infused into our methods of organization.....I have for long held that the industry should be controlled on scientific lines if we are to get back our prosperity, and I see no hope of its return until we do administer our affairs, not in the interests of individuals, but in the interests of the whole spinning and manufacturing trade. We lack nothing but organization, and once we get that we shall again assume our former supreme and prosperous position in the cotton trade of the world."

Sir Charles W. Macara, Bart., Britain's Foremost Textile Authority



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Types of Bombay Millhands: The Two Men with Beards are Mohammedans.

Imperial Preference the Goal

Considerable weight is given to the above story by the fact that British opinion is practically unanimous in that the future of the nation can be assured only through some form of Imperial Preference or reciprocity with the Dominions. The insolent tone of the Bombay Mill Owners statement can be explained only on the supposition that the president of the association, assured beforehand that the Indian Government had received its orders from London, overplayed a hand that official procedure requires shall be shown face up on the table. The following significant observation may provide the key to the puzzle. "*My committee do not at the present juncture wish to make any claim for general protection. They consider that if safeguarded from unfair competition, the Indian textile industry will at least be able to retain its home market.*" The obvious deduction is that if the government cannot safeguard the industry by countervailing duties against Japanese goods, the only remedy lies in general protection, which, in this case and at this juncture, also means Imperial Preference.

This may be whipping the devil around a very big stump and for this reason, the final report of the Tariff Board will be awaited with interest. It is only fair to state however, that so far, it cannot be said that the Government of India or responsible opinion in Calcutta has demonstrated any sympathy with the so-called Bombay-Lancashire plot and from the way the government is handling the question there seems little likelihood that it will be stampeded into sacrificing the interests of the country at large to benefit any one group. This position is very ably set forth by *Capital* in the following words:

> In respect of raw material and markets, Indian mills are as favourably situated as any cotton mills in the world, and, at certain times, they have earned enormous profits. Their costs of production are now high, quality of their goods uneven, and their sales methods open to criticism. As in certain industries located nearer Calcutta—for many years it required no very exceptional standard of energy or intelligence to extract profits from cotton manufacturing, but, with the advent of a world-wide depression, that period of easy-money is over, and a sterner contest is now afoot, requiring, in some instances, different men, and, in all instances, different measures. For that reason, it is no disadvantage that the cotton industry is now to be examined, with the aid of the patented Noyce X-ray. The Bombay section of the industry has been badly stung and irritated by the Japanese wasp, (which therefore should be effectively "swatted") but the real sources of its indisposition are internal, and these may possibly necessitate a surgical operation."

Bombay's Bawl for Pap

Aside altogether from pure administrative incompetence, ingrained corruption, inefficient labor and all the other drawbacks to profitable operation in normal times, the Bombay industry labors under the further handicap of faulty location. As noted elsewhere, instead of trying to carry forward the main object for which the industry was originally established, the Bombay cotton mills have concentrated on building up the more profitable export trade, thus deliberately inviting a competition they are not equipped to meet on equal terms. This fact has a most important bearing on the present controversy as the erection of mills in other parts of India in the centres of producing and consuming districts, places Bombay in a difficult competitive position for meeting the requirements of the home market. This tends to force Bombay more and more into the export field. Bombay's indifference to its natural market has resulted in the erection of 255 mills scattered throughout the interior of India, each one practically dominating its own particular field. Handicapped by excessive rail and steamship rates and other disequalities, Bombay is practically out of the race for the home market and must engage in a losing fight with better organized foreign competitors for a share of the nearby Asiatic and African markets.

Bombay is therefore up against it, coming and going, inside and outside, paying the penalty of centralizing a huge industry in a strategically weak location. Caught between the competition of the better situated mofussil mills on one side and by the highly organized and scientifically managed Japanese mills on the other, (to say nothing of the Lancashire giant), Bombay can do nothing but rage and storm and cry for help. Not daring to unduly emphasize the weakness of her position at home and invite the retort of other Indian mill owners, Bombay takes the line of least resistance and vents her spite on Japan.

A Real Grievance

No one can blame Bombay for doing its utmost to obtain concessions from its government. That is entirely its own affair. It has learned that it has only to yell loud enough and often enough in order to get what it wants from an indulgent administration. "The child that don't cry, don't get suckled," a maxim that ever-hungry Bombay puts into practice in season and out. But when the raucous bawl for more pap is accompanied with the demand that existing treaties be denounced and Japan penalized by the imposition of a discriminatory duty on her products, the nipple-fed prodigy invites what it should have received long ago.

India, as a whole undoubtedly has a real grievance, but it cannot by any stretch of the imagination be connected with Japanese competition with Indian textile products. The lure that attracted the British to India three centuries ago was the immense profits to be made out of Indian calicos for the European market. The British trader advanced the funds to the poverty stricken hand-loom workers in order that they might purchase the yarn and took in payment so many yards of finished calico. For over two centuries India was the chief source of supply for England's cotton textile needs but with the invention of modern spinning and weaving machinery the native Indian weaver saw his old home markets invaded by the products of the power loom and his means of livelihood gradually disappear before the unequal competition. The positions of the two countries became reversed. India was transformed from a producing to a consuming country and the British trader whose armies once fought to maintain their monopoly of India's export trade now concentrates his political influence on Whitehall to preserve India as a preferred market for his power loom products. The author of the "Guide to Madras, The Birth Place of British India,"

in his remarks at the close of the introductory historical chapter, artlessly remarks;

"Possibly some day a gifted sculptor will typify the birth of the British Indian Empire. In the center a globe. To west of it Queen Elizabeth signing the charter incorporating the Honourable East India Company. On the opposite side the Maharaja of Vijianagar sanctioning the gold-plated *kaul* conveying Madras to the merchants. At the feet of the two sovereigns the sculptor might well place an English trader of the seventeenth century, yard measure in hand, and an Indian weaver delivering the stipulated length of stamped calico."

That same gifted sculptor might also be called upon to design a monument typifying the decline of the British Empire in India and if he is inspired by the same sense of the fitness of things, he will show a nineteenth century English weaver standing amidst his steam spindles, his looms and his expert labor forcing his bales of machine made calicos on the impoverished Indian worker whose former means of livelihood has been destroyed by modern machinery and the overwhelming preponderance of spindles and looms in the British textile mills. For that in a nut shell is the real story of India, the root cause of the poverty, the riots, the ever increasing clamor for self government, and demands for tariff protection.

Why Complain of Japanese Subsidies?

The Crystal Roof of Great Britain

THE Bombay mill owners and their British allies insist that the Japanese enjoy special trade advantages through indirect subsidies as regards freight rates and government bounties, and in proof thereof invite attention to the establishment of a new Osaka Shosen Kaisha steamship service to East African ports with a government subsidy of Yen 400,000 yearly. They also quote Japanese newspapers which state that the Nippon Yusen Kaisha is to receive a subsidy of Yen 2,860,000 a year for its three new 14,000 ton Diesel engined steamships to be placed on the North American run. They further declare; "*it is a well known fact that in Japan subsidies and bounties are given to industries in a variety of ways too subtle to be detected without access to official records and statistics*" and argues that "the question is one of vital importance when examining the nature of Japanese competition."

In so far as their competition with Bombay is concerned, the Japanese answer was categoric, merely stating that the mail subsidy to the Bombay line of the Nippon Yusen Kaisha, extended originally for the purpose of facilitating direct communication between Japan and India and in order to free Japan from the subsidized monopoly enjoyed for many years by the British P. & O. Steamship Company, was definitely stopped in 1906, twenty years ago, and therefore cuts no ice in the present dispute. Bombay then rambled all over the world manufacturing evidence and specious arguments to support its general contention that Japanese shipping lines are subsidized for the purpose of encouraging foreign trade. That the Japanese did not lose their temper and open up the whole question of direct and indirect British subsidies to steamships, industry, finance and foreign trade, is merely further evidence of a courtesy and forebearance which no other opponent would have shown in retorting to such a display of uncalled-for churlishness. It might be interesting for the trade experts of other nations to have access to the Japanese official files in order to discover just how much, and in what manner, if any, the government grants financial assistance for the advancement of its own national interests, but it would be ten times more interesting and illuminating for these same experts to get a peep into the archives of the British Government and discover how it employs the public funds for similar ends. It would serve no good purpose in this article to raise the question of British subsidies to steamship lines disguised as mail contracts or to revive the inquiry as to how much public money has been contributed in one form or other towards the construction of fast merchant liners specially designed to take their place in the fleet in the event of war.

The Japanese are not called upon to enlighten the world on the inside working of their state aids to steamships and industries. The day is long past when any one nation has the right to call in question the legality of such measures. They all do it, if not openly, then secretly or by devious ways. It comes with ill-grace to have such a challenge issued at this time by any British organization for the simple reason that their government stands to-day as the foremost advocate of trade subvention that the world has ever seen. All the subsidies, secret aids, rebates, bounties, and other state contributions for the encouragement of industry in all the countries of the civilized world are only a drop in the bucket compared to the stupendous subsidy of £40,000,000 that Great Britain is now annually paying her labor in the form of unemployment doles and benefits. When it comes to maintaining a million to two million unemployed over a period of years, the aggregate, over £160,000,000 assumes such unheard of proportions as to overshadow the paltry subsidies of all other countries combined.

Is Not the Dole a Subsidy?

The British argue that the dole is a necessity, a legitimate charge on the nation in times of severe industrial depression. So it is, and the rest of the world takes off its hat and pays due homage to the spirit of humanitarianism and patriotism which taxes the nation to bring this relief to the masses. However, the explanation does not end there by any means. There is another and more practical side to this benevolence. Suppose an impoverished British treasury could not stand the strain of such a huge expenditure; *what would happen*? Ponder over this and it will be seen that the British government wisely decided it was more economical to shoulder the heavy burden of the dole than invite the certain catastrophe that would have followed upon a long period of trade depression. Without the dole the unemployed and their several dependents who could not escape their fate by emigration, would have been doomed to certain death by slow starvation unless work of some nature at a living wage was found for them. The result would have been a competition in labor, or a shortening of hours all around that would have dragged the nation down to a starvation level at a time of severe world trade stagnation when outlets for British goods were either closed or subjected to cut-throat competition. Britain would have felt the pinch of competition with other overcrowded countries and been compelled to reduce her standards of living in order to hold her own in the mere struggle for existence. Without the dole, Britain by this time would have faced an internal revolution that would have destroyed the old order of things and undermined her position as a world power. Fortunately, Great Britain had the hoarded wealth of a century of prosperous trading accumulated during a period when she had no serious competition, and has been able to stand the strain of this unparalleled subvention.

What would have happened in England during the general strike of last May if the million or more of unemployed had been facing starvation? If it had not been for the daily living dole would there not have been a rush on the part of the starving unemployed to fill the jobs vacated by the strikers? The army of workers who volunteered to carry on were recruited largely from the middle classes, non-recipients of the dole. Is not this the real secret behind the failure of the strike? Would the Labor Leaders have dared to pit themselves against the Government if they had not felt confident of the complete neutrality of the unemployed masses? They certainly were in a strong strategic position and had every reason to believe that this element would not interfere, a faith that was amply justified by events. The people who saved England were not the unemployed workers who could contemplate calmly the outcome of the gigantic struggle on three square meals a day paid for by the government. What the consequences might have been in the absence of the dole is worth pondering over. Great Britian had the wealth to carry through with; but what remedy has another nation lacking these vast reserves of capital?

The Disasters of 1923

Japan, for example, lost as many lives and as much wealth in the two terrible days of early September 1923, as though she had been vanquished in a great war. After the first wave of sentiment and sympathy passed, and it passed quickly, the rest of the world forgot about Japan's troubles and left her to face her sorrow and reconstruction problems alone. Japan had no reserve wealth on which to draw to pay an unemployment dole to her destitute millions. She had either to borrow abroad, economize, or work harder in order to surmount her difficulties. The factories of Japan must therefore provide as much employment as possible, and the time is coming when it will not be a petty question of working double shifts in her mills, but sheer necessity will force her to keep them going night and day continuously in order to contribute their part in the heart-breaking task of reconstruction and to find a solution to the pressing population problem. In the face of these conditions, it is sheer folly and impertinence to lecture Japan on whatever steps she may take to solve her problems in a peaceful manner, when the British government holding the fairest places in the world as outlets for its unemployed—and to which they will not go—sets a pace in subsidies which on other nation, outside of the United States, could hope to imitate. The British would rightly resent any adverse foreign criticism of the means they have applied to tide over their own troubles, and if they are content to subsidize their labor in order to hold their political and industrial position in the world, they cannot fairly condemn another nation which adopts the same principle to safeguard its economic existence.

Trade Insurance

It must not be overlooked that the British Government recently placed in operation a new fangled insurance scheme to enable its merchants and manufacturers to insure against bad debts in the export trade. An unexpended balance of £20,000,000 from the funds of a previous scheme for subsidizing its manufactures by extending export credits, was immediately available for financing the new departure without asking Parliament for fresh money. This insurance, it is hoped, will be particularly serviceable in the case of long term credits and enable the British merchant, especially the heavy engineering trades, to overcome the advantage enjoyed by their competitors in quoting long credits at low rates of interest. For many years British traders have pointed to the long term credits extended by German competitors as one of the reasons why the latter had undercut them in important foreign contracts. So the British Government has finally, after many years, come to the assistance of its own. Now there is nothing secret or wrong about this scheme, but does it not, after all, come under the head of an indirect subsidy for the advancement of British export trade? Could Japan in her present straightened financial circumstances set aside an equal fund to safeguard its traders from export losses through bad debts? If she did, even in a smaller way, would it not invoke a storm of protest from the British press? Because of their poverty, would the Japanese be justified in seeing in this special protection to British traders, an unfair advantage? Its all according to the point of view.

The Coal Subsidy

Then there is the coal subsidy, a most sorrowful subject to dwell upon. Faced with a collapse of its key industry over a wage dispute, the British Government voted a sum of £30,000,000 to enable the coal mines to carry on until a solution to its troubles was found. The subsidy was spent at an average rate of £3,000,000 a month and neither the owners or the miners made any serious attempt to come together as long as they could hold-up the country and make ends meet with the people's money. When the Government refused to be sand-bagged into granting an indefinite prolongation of the subsidy, the labor leaders declared a general strike. It is not our intention to moralize on this painful incident further than to invite attention to the fact that if the British Government in its wisdom was justified in financially assisting its major industry, it would be equally justified in applying the same remedy to any other important trade threatened with disaster. If coal, why not textiles?

It must be borne in mind that in addition to being the foundation of Britain's iron and steel, shipbuilding and engineering trades, coal also provides one-tenth of her exports in value and about four-fifths of them in volume. By furnishing outward cargo for a large amount of shipping, it cheapens freights for the imports on which Great Britain depends for its vital needs. Coal exports and the retention of her foreign markets for this commodity is therefore highly important to the economic welfare of Great Britain, yet her exports of coal have fallen off about 20,000,000 tons in the past ten years and the loss of markets due to the strike will materially augment these figures. British coal is therefore a highly competitive product of labor in the export field and once the British press questions the legality or the morality of extending state aid to any product which competes in the markets of the world with those of other nations, they place themselves in a vulnerable and impossible position.

Britain's Strength

Huge Plant; Manufacturing Skill

"Many articles written on cotton affairs contain erroneous statements about foreign competition. The writers overlook the fact that England possesses one third of the cotton machinery of the world, ignoring the international statistics, available for twenty years, showing the impossibility of these foreign countries supplying their own requirements. Further, the machinery in these countries has cost fifty to one hundred per cent. more than in England.

And what does Japanese activity amount to? The Japan Cotton Spinners' Association tells us that in 1924 the mills belonging to the Association "reported three times the number of spindles and eight times the number of looms that they possessed in 1905, and during this period the annual consumption of raw cotton increased over 1,000,000 bales, the output of cotton yarns was doubled, and cloth production was augmented eightfold." All of which sounds quite imposing until it is pointed out that even on short-time working, England exported to India alone last year 300,000,000 yards of cloth more than Japan produced altogether working overtime. And our exports, it must be remembered, were of fine goods, while Japan's were coarse, making all the difference in the world in the value of the production.

English textile goods, indeed, maintain their supremacy everywhere, and they will come into their own again so far as quantity is concerned, as soon as countries like China settle down, and we get rid of some of the financial burdens imposed upon us by the war. We have such a lead in plant, in climate, in workmanship and everything else that it is a total impossibility for us to be overtaken by any other country engaged in cotton goods production."

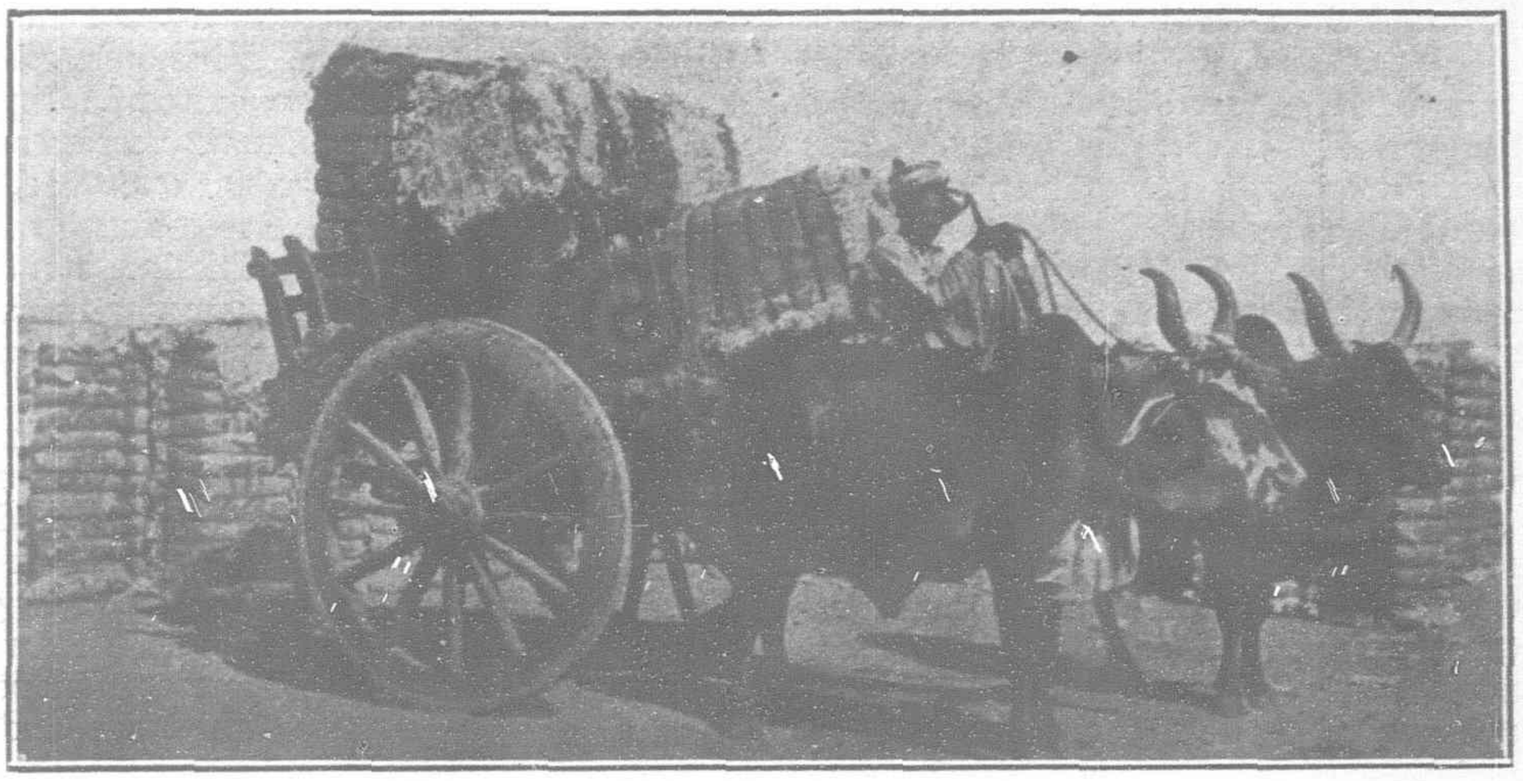
Sir Charles W. Macara, Bart.

Cannot Japan do the Same?

Silk is the mainstay of Japan, but the manufacture of cotton yarn and piece-goods constitutes her major industry. Is Japan justified in extending financial aid for the advancement of this industry? Is Great Britain alone of all the nations of the world entitled to use its vast reserves of wealth to subsidize its labor and

industries while other nations are indicted by the British press before the bar of world opinion for doing the same thing on a much smaller scale? Yet at the very time when Britain was spending in the aggregate nearly £100,000,000 a year in the effort to save and protect her industries and labor, a narrow-minded section of the British and Indian press was calumniating Japan for some fancied subsidies to her cotton industry, which, if they exist at all, are so infinitesimal as compared with the British expenditure, that they are not worth talking about.

There are other minor phases of indirect state aid to trade in various subtle forms which might rightfully enter into this discussion, but the above facts are sufficient to bring home to all fair-minded Britons how unjust and how one-sided has been the campaign directed against Japan. Let us admit for the sake of argument that all the charges of *unfair competition arising from government* or special support to the Japanese textile industry are true. What of it? What nation has the right to condemn Japan? Surely not Great Britain.

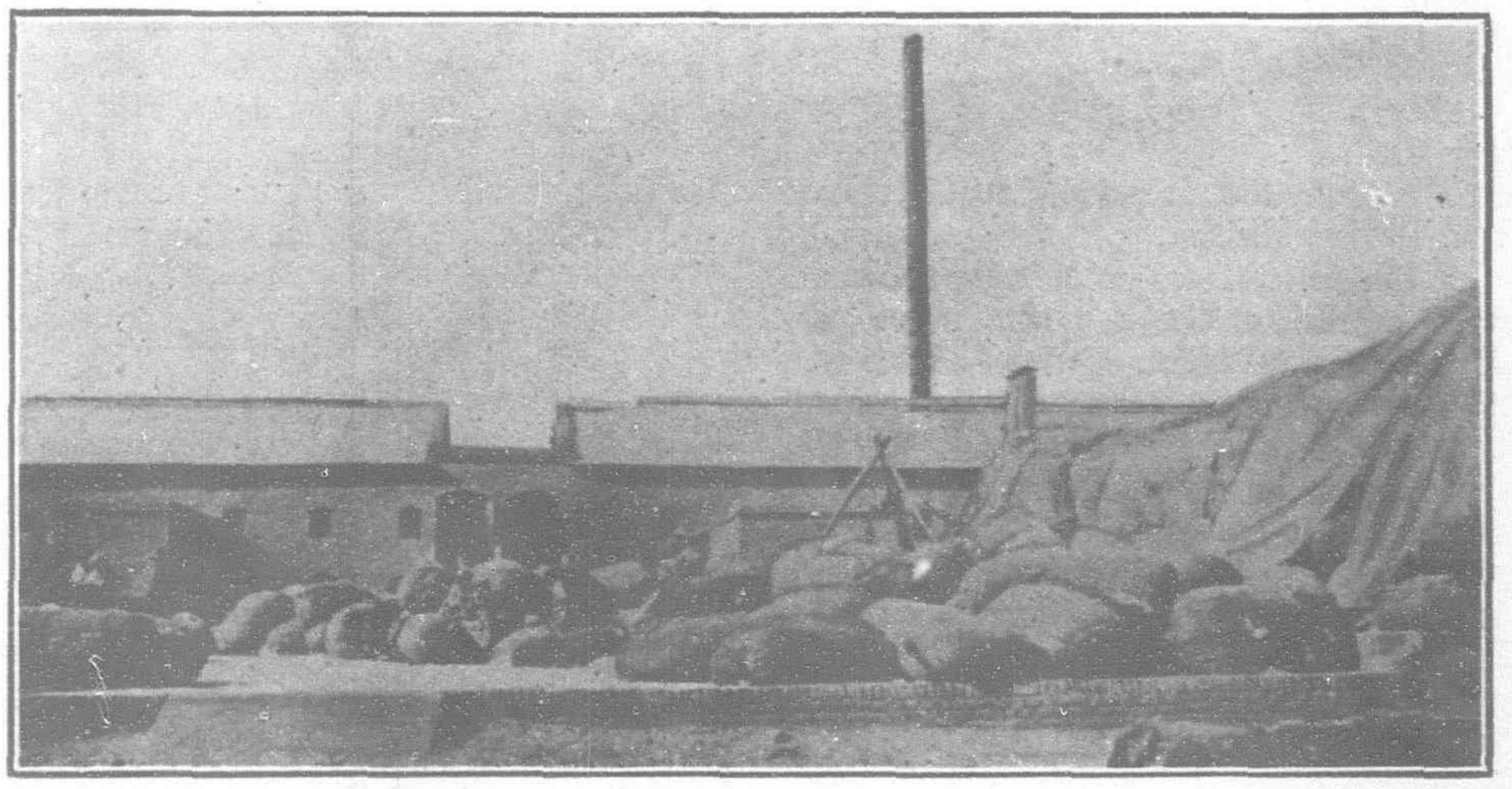


A Cotton Cart, Bombay.

And Even in India

As to India, so intent has been the Bombay Mill Owners' Association in trying to fasten the blame upon Japan for its own inefficiency that it has overlooked altogether the juicy government bounties enjoyed by one of its most prominent members in another line of industry. One of the largest Bombay cotton mill owners is the great Parsee firm of Tata Sons & Company, Ltd., who amongst its varied activities owns and operates the Tata Iron & Steel Works, the largest establishment of its kind in India. The controversy over the amount of bounty paid by the Indian Government for the protection of its nascent iron and steel industry and which goes almost in its entirety to create a monopoly for the Tata enterprise, is a story by itself. For the purpose of this article it is sufficient to state that the cost of producing a ton of pig iron is said to be 27 rupees and the enjoyment of the bounty on steel products enables the Tata Iron & Steel Works to dump its pig in America and Japan at a cost of 37 rupees per ton while charging the home consumer 68 rupees!

Out of a total production in 1924 of 872,547 tons of pig iron, 341,326 tons were exported, Japan taking one half or 171,665.tons. A feature of the trade was the sudden jump from 24,000 tons exported to the United States in 1923 to 133,000 tons the following year at prices which called forth vigorous protests from American steel interests and requests for special protection. The owners of Indian iron works and other industrial establishments forced to pay 67 rupees per ton for the same product are also voicing their indignation and demanding the abolition of the bounty. These are merely the high lights in a very interesting controversy, but they bring into sharp relief the fact that the most prominent industrial group in Bombay, is profiting at the expense of the people of India to a degree that puts to shame any slight bounty that the Japanese may extend to its premier industry. There is no need to stress the point. The members of the Bombay Mill Owners' Association are living in very large and conspicuous glass houses, inviting a shower of bricks in return for the missiles they have thrown at Japan, while the voluminious evidence submitted at the hearings of the Indian Tariff Commission, now sitting to determine the amount of protection required to safeguard Indian industries against outside competition, discloses that outside of jute, there is hardly an industry in the country that is not seeking a bounty or subvention in some form or other.



A Cotton Ginning Plant at Khanewal, India.

The Japanese Cotton Spinners' Association

All the hullaballoo about Japanese subsidies and bounty-fed freights indulged in by the Indian and British press resolves itself into the following facts. In the first place, the duties imposed upon cotton yarns in the lower counts imported into Japan are equivalent to an approximate five percent *ad valorum*, hardly sufficient to be termed a protection against more efficient competitors. In finished products however the home industry is protected by a twenty per cent *ad valorum* duty, but the protection ends right there. Whatever success has been attained in building up an export market for yarn and piece goods, is the direct result of mutual aid and protection combined with organized buying and selling methods within the trade itself. In the early stages of the industry, as far back as 1882, the Japanese cotton manufacturers formed themselves into an association, which, as the industry progressed, increased in influence and financial strength through a systematic schedule of contributions from its members. Long before the Japanese Government appointed commercial attaches or trade commissioners to study foreign markets, the Japanese Cotton Spinners' Association was conducting investigations for expanding exports. The membership of this association is composed of 54 companies (over ninety per cent. of the total number of companies engaged in the industry), operating 201 mills, backed by a paid-up capital of Yen 345,000,000 and Yen 211,000,000 of reserves at the the end of June, 1925. It has no connection with or does it receive any state subvention or aid other than that extended through the commerce department investigators.

During the industrial boom following the Sino-Japanese war in 1896, the cotton spinners over-expanded their mills and production, and when in 1898, a financial crash in Shanghai paralyzed trade with China, they found themselves with huge stocks on hand for which no market could be found. Failing to agree amongst themselves to the application of a mutual aid scheme, as a last resort the government was requested to grant an export bounty. This was refused. This experience convinced the association that

only through its own efforts could the export end of the trade be stabilized during periods of depression, a contingency which was not long in coming. In 1902, another collapse of the China market threatening the prosperity of the Japanese cotton mills, led to a thorough and systematic readjustment of the industry through shortening working hours, curtailing production, reorganization of management, amalgamation of the mills and the creation of a mutual benefit fund for emergency allowances on exported goods.

The Export Allowance Fund

This so-called allowance fund was established without any outside help or encouragement. All the mill-owners had to contribute their quota even when their particular interests were centered on producing goods for the home demand. Under these conditions, the fund could not be employed indefinitely to favor the export trade at the expense of the home section of the industry, and even when such allowances were granted they never exceeded two per cent. of the value of the goods and never prolonged beyond the time strictly necessary to tide over a trade depression.

The association declares that these emergency payments were made during the months of September and October, 1902, to the extent of three yen per bale of yarn under 20 counts and Yen 1.10 per 300 lbs. of certain kinds of piece goods, the funds for this purpose being derived from freight rebates on raw cotton shipped from India. A further allowance was paid on cotton goods exported to China from March to December, 1908 and again from January, 1909 to March, 1912, an allowance of Yen 1.50 per bale of cotton yarn under 20 counts was allowed for the same market. On cotton piece goods an allowance of Yen 1.00 per bale of cloth of more than 28 inches wide and Yen. 75 per bale on narrow widths was granted from October, 1909. The payment of allowances came to an end before the beginning of the Great War and have not been resumed.

Freight Rebates

The subsidy to the Bombay Line of the Nippon Yusen Kaisha granted by the government in 1896 for the sole purpose of facilitating communications between Japan and India and freeing the cotton carrying traffic from the monopoly enjoyed by British shipping, ceased in 1906. There remains as a subject of dispute the question of freight rebates on raw cotton shipped from Bombay allowed by the association to its members.

This, however, is a very legitimate business proceeding based on bulk purchasing in a favorable market of the raw cotton and the handling of the cargo by the association which contracts with the steamship companies for its conveyance to Japan. As a result, the association is able to enter into fixed traffic contracts with the steamship lines and enjoy a fair rebate on the regular tariff. These rebates are then distributed amongst the members of the association according to the volume of their imports. This system was forced upon Japan by the operation of a monoply of the carrying traffic between India and Japan held for many years by the subsidized British P. &. O. Steamship Company, whose high rates hampered the importation of Indian cotton into Japan. In 1893, or three years before the Japanese Government was induced to subsidize the Bombay Line of the N. Y. K., an agreement had been entered into between the Japan Cotton Spinners' Association and this steamship company, in which the latter inaugurated its Bombay service under a compromise to carry raw cotton to Japan at a rate of 13 rupees per ton, or four rupees under the current rate charged by the P. & O. Line. This agreement was not one-sided, as all the members of the Japan Cotton Spinners' Association bound themselves to use the N. Y. K. ships to carry all their raw cotton cargoes imported into Japan and gave a further guarantee to pay freight for 50,000 bales of raw cotton a year at 13 rupees per ton even when the market rate fell below this figure as the result of competition. The agreement was for one year only, but it worked out to the satisfaction of both parties. When the agreement was extended in 1894 to cover cotton shipments from Colombo and Tuticorin, the N. Y. K. suffered considerable loss and refused to renew the arrangement. The government was then petitioned to grant a subsidy for this service. This was given in 1896. Meanwhile, the other steamship companies deprived of their former monopoly were making desperate efforts to regain a portion of the trade, and in the competition which ensued, the N. Y. K. concluded an agreement with the P. & O. Company, the Italian Societa Nazionale di Servisi Maritimi and the Austrian Lloyd, under which their steamships secured a share of the raw cotton carrying trade from India to Japan under the same terms as the N.Y.K. In effect, the intelligent co-operation of the Japanese government with its cotton industry and steamship companies broke the foreign shipping monopoly which penalized their trade and afterwards conceded a share of the business. This pooling agreement has since been revised and other steamship companies admitted into the Conference, but the association's representative at Bombay oversees the shipment of cotton, allocating the space between the shipping companies in accordance with the needs of its members. This supervision over shipments under a fixed contract guaranteeing a certain tonnage to each steamship line and the enjoyment by the shipper of a stipulated rebate in return, constitutes the sole guarantee that the Japanese cotton industry will not be penalized by a sudden increase in freight rates. As long as the other companies are prepared to accept the basic freight rate and concede the rebate, no discrimination is made in favor of any one steamship company. The benefits attached to the scheme are evenly divided between India and Japan, the former being assured of an increasing market for its raw cotton and the latter a guarantee that its cargo will enjoy the cheapest possible freight rate.

Sir N. N. Wadia, C.I.E., M.L.C.

President of the Bombay Mill Owners' Association, conducting the campaign for the imposition of discriminatory duties on Japanese textiles

Japanese Scientific Organization

This however, is only one feature of Japanese trading efficiency. In addition to the Cotton Spinners' Association, there are two scientifically directed purchasing and selling organizations with branches in all the producing and sales centres of India. The Japan Cotton Trading Company, Limited, and the Oriental Cotton Trading Company, Ltd. (a Mitsui concern), handle over fifty per cent. of the raw cotton exported from India to Japan and a large proportion of the imports of yarn and piece goods. Both of these companies, backed by immense capital, are in the position to purchase the raw material in large quantities whenever the market is most favorable. The saving in this one item alone added to the most

favorable freight rate, gives them an advantage over the average Indian mill that is rarely taken into consideration. Some idea of the efficiency of one of these organizations can be gathered from the map of India on page—showing over 160 cities and towns where the Oriental Cotton Trading Company (Toyo Menkwa Kaisha) has permanent agents and representatives.

Why is India in the League of Nations?

Sixty Million Human Beings Maintained in Perpetual Slavery

BOMBAY'S case against Japan is set forth in an editorial published in *The Times of India* on February 5 and incorporated in the official *dossier* presented to the Government by the Mill Owners' Association. It says :

"One of the main grievances of the cotton mill industry of India is that, although Japan accepted the Convention adopted by the International Labor Conference at Washington in 1919 regarding hours of work, she has failed to ratify it, and Japanese mills are now working 22 hours a day in two shifts, and women and children are employed at night on very low wages. This enables Japanese mills to keep their manufacturing costs at a comparatively low level, and in view of this, and other circumstances such as depreciated exchange, etc., Japanese competition has come to be looked upon as grossly unfair in its nature. It is regrettable that Japan should have lagged so considerably behind other industrially advanced countries so far as her treatment of labor is concerned. But it is not merely that the labor conditions prevailing in Japan give unfair advantage to the cotton mill industry of that country in competing with the manufactures of India—and, it may be added, also of Lancashire ; *but humanitarian considerations also require that the Governments of all civilized countries and the International Labor Office should bring pressure to bear upon the authorities in Japan to make that country toe the line with other civilized countries as far as treatment of labor is concerned.*"

The Times of India then goes on to prove its case by quoting the Japanese Director of Factory Inspection to the effect that millowners and other employers recruit labor in a manner which is devoid of all ethical and moral considerations and makes out a very black case against the Japanese from their own testimony. In regard to women the impression is given that after they have served their time in the mills, the innocent country girl who left home full of health and vigor soon returns with wrecked health and haggard face, or news comes of her utter moral ruin and degredation. It also quotes from the *Japan Year Book* on the unsanitary conditions of the mills and the poor food and care given to the workers. It concludes by saying :

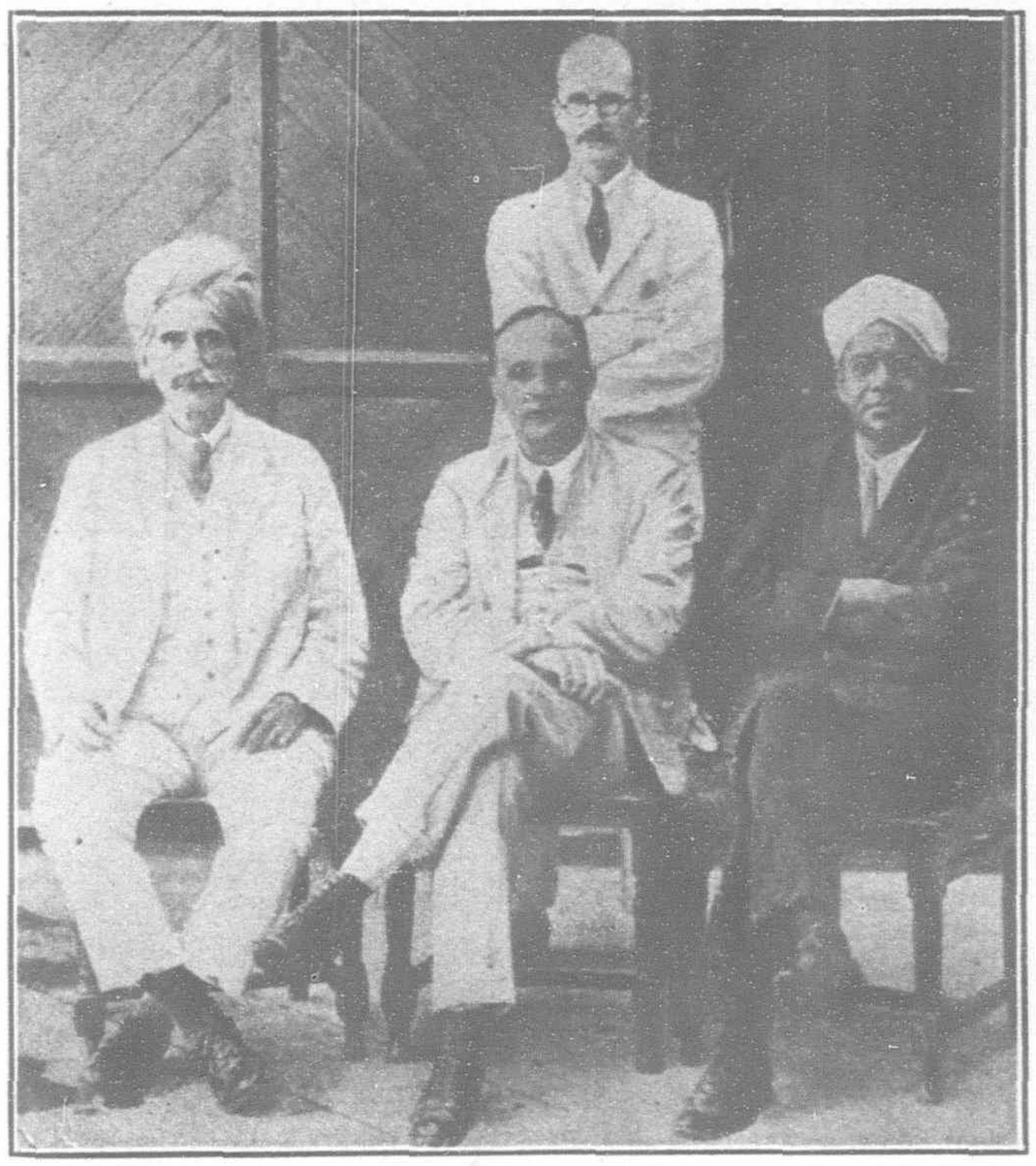
"It would be superfluous to make any comments on the above quoted extract but it will be generally agreed that notwithstanding her great industrial advancement, *Japan has betrayed a most lamentable and callous disregard for the well-being of her factory workers who, it should be remembered, are mostly women.*" It then goes on to quote a leading article which appeared in *The London Times* of December 2, 1925, comparing the conduct of India and Japan in respect of the recommendations of the International Labor Conference, in the following words :

"*If Indian labor conditions still falls short of the ideal, it should in fairness* be remembered that the Indian Government has set a fine example to many other nations in carrying out by legislation the recommendations of the International Labor Conference at Washington. In some respects India has indeed outstripped Washington itself. The Japanese Government, on the other hand, if it has accepted the recommendations of the Conference and has passed numerous laws for the improvement of labor conditions, has by no means made all of them operative. The twenty-two hour day of two shifts is still maintained in Japanese factories and a large proportion of women are still employed on the night shift. When to this is added a buying and producing organization so efficient that the great Osaka mills can purchase raw cotton in India, ship it to Japan, make it up into piece-goods, ship it back to India and compete there, in spite of the 11 per cent. duty, with Bombay textiles, it is not surprising that Japanese competition in a large range of grades of cotton goods is being increasingly felt even in this country. The situation of the British and Indian textile industry certainly seems to call for some form of co-operation against this competition." On the strength of this support from *The Times*, the Mill Owners' then go on to ask that Japan be penalized for her inhumanity. They say :

"*It is to be hoped that the International Labor Office will take some effective steps to force Japan to carry out her international obligations so that on the one hand the legitimate grievance of this country, which has faithfully carried out the Washington Convention, may be removed, and on the other hand a state of things which flagrantly violates principles of humanity and social well-being may be brought to an end.*"

The Bombay Mill Owners' Association winds up its case by quoting from the speech of Mr. Johnstone in the debate in the House of Commons on July 9, 1925, in which after referring to the sweated labor conditions prevailing in Japan, he said :

"I think we will have to take steps internationally to deal with these conditions, whether they are in Japan, India, London, or anywhere else ; we will require to insist upon certain minimum standards of civilization, or we will require to boycott the products of this sweated labor from the civilized markets of the world. If we will stop the transport of sweated goods inside this country, if we will attempt to deal with the home sweater, we must also deal internationally, through the League of Nations, through the International Labor Office, or anything else you like, with the international sweater."



THE COTTON INDUSTRY TARIFF BOARD

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This is a stiff indictment. The Japanese Cotton Spinners' Association answered it by once more setting forth the actual conditions prevailing in the Japanese mills, but in this answer as in all other correspondence connected with the controversy, exhibited a marked reluctance to strike back and call the turn on India's cynical disregard for the rights of its lower classes and well-being of its women and children. The offensive superiority displayed in the tone of the Anglo-Indian indictment of Japan, together with the open threat to invoke the punishment of the League of Nations for failure to give immediate effect to the resolutions adopted at Washington, invites the retort that the Japanese were too courteous to make. On reading Bombay's ill-bred arraignment there are many questions that surge to the mind of the disinterested and impartial observer, which the Indians and their British sympathizers would find extremely embarassing to answer.

Pertinent Questions

In the first place : What is India doing in the League of Nations ? Who let her in ?

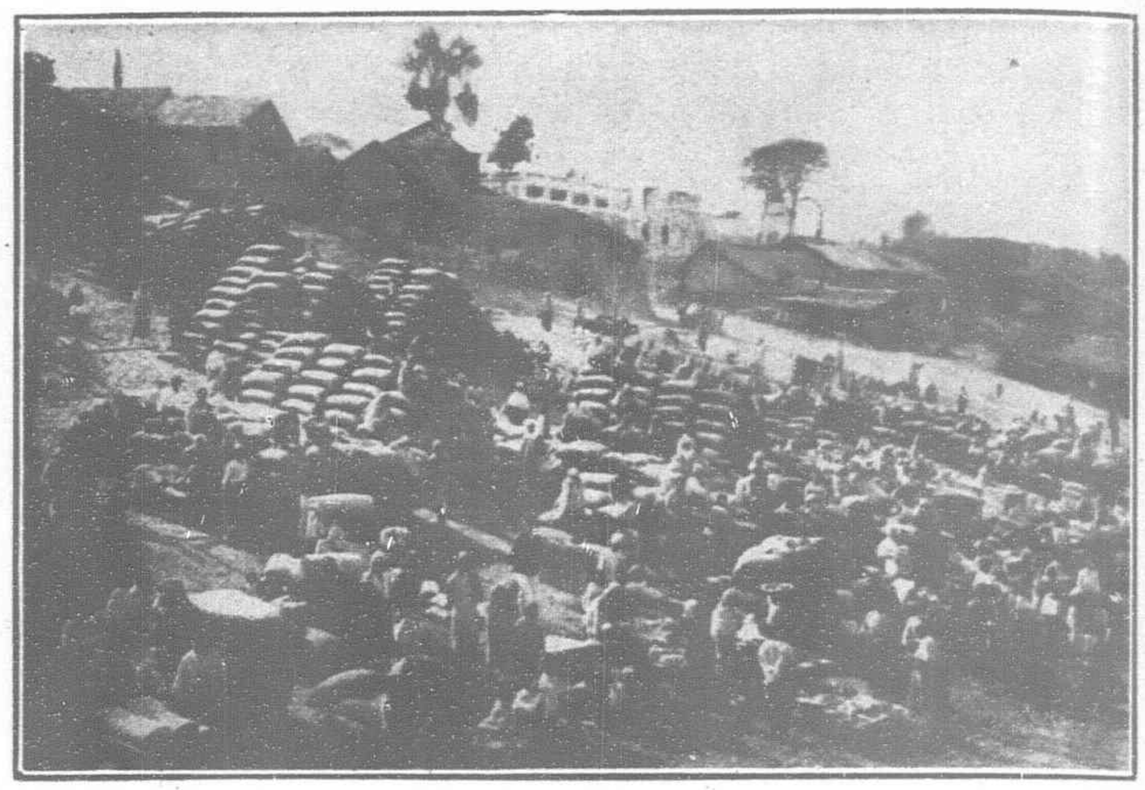
What are India's qualifications to a position of equality with other independent and self-governing states ?

What right has India to participate in the deliberations of the International Labor Office and Conferences ?

Who is India anyhow to prate publicly about inhumanity and insult other nations because they have delayed in acting on a resolution which its own government immediately adopted but cannot enforce ?

Why did the Indian Government show such haste in ratifying a convention regulating the hours of labor of two hundred thousand

A Cotton Ginnery Yard in India.



Loading Cotton on a River Steamer in Burma.

mill hands when it is notoriously powerless to enforce similar laws for improving the status and living conditions of over sixty millions of its submerged classes ?

By what logic can India justify the attack upon the employment of women workers in Japan when its own social laws and customs condemn women to a life of inactivity behind the *purdah*, thus depriving the country of one of its most valuable economic assets ?

Why assume from the report of one Japanese factory inspector the immorality attached to the employment of women in Japanese cotton mills and ignore the evidence that the " Naikins " or forewomen in the Bombay mills not only exact a squeeze from the wages of all the women workers under them, but make use of their power to force their subordinates into prostitution ?

Why does Bombay throw bricks at Japan for employing children and then shower bouquets on itself, when the conditions in its own mills and the mines of India are infinitely worse, despite the ratification by the Indian Government of the International Labor Convention regulating the employment of children ?

What right has India whose people are notoriously the most illiterate and poverty stricken in the world, to challenge the progressiveness and humanity of a government which compels 98 per cent. of its children to attend school and where only four per cent., of the total population is illiterate against eight per cent. of the entire Indian population that is literate ?

What is the relative position in the family of civilized peoples of a nation like Japan which expends 486 million yen annually (say £48,000,000) to educate the children of 75 million people and that of a government like India which spends £7,000,000 to educate the children of over 300 million people while taxing them to the tune of £57,000,000 for a military and police establishment to keep them in subjection ?

There are many more pertinent and highly disconcerting questions germane to the subject which the Anglo-Indians invite by demanding that Japan be haled before the League of Nations and punished for her delay in ratifying the Labor Convention. There are certain fundamental and unescapable facts concerning India that were obviously lost sight of in the heat of the cotton controversy but which cannot be side-stepped should the question be taken out of the hands of the Bombay Mill Owners and carried to the League or the International Labor Bureau. Unless we underestimate the temper of the British Labor leaders on the question of India, any attempt to arraign and condemn Japan would end by the indictment of Great Britain herself and the suspension of India from the League until such time as she could re-enter the assembly on a plane of full equality with other independent and self-governing states. It is a good thing perhaps that America is out of the League, but if the matter ever goes before an International Conference in which an American delegation takes part, there will certainly be some fireworks over India. Far from being dismayed at the threat, the Japanese should welcome the opportunity to have the matter threshed out in open debate before the world. By all means, let the British champions of India carry out their threat—if they dare.

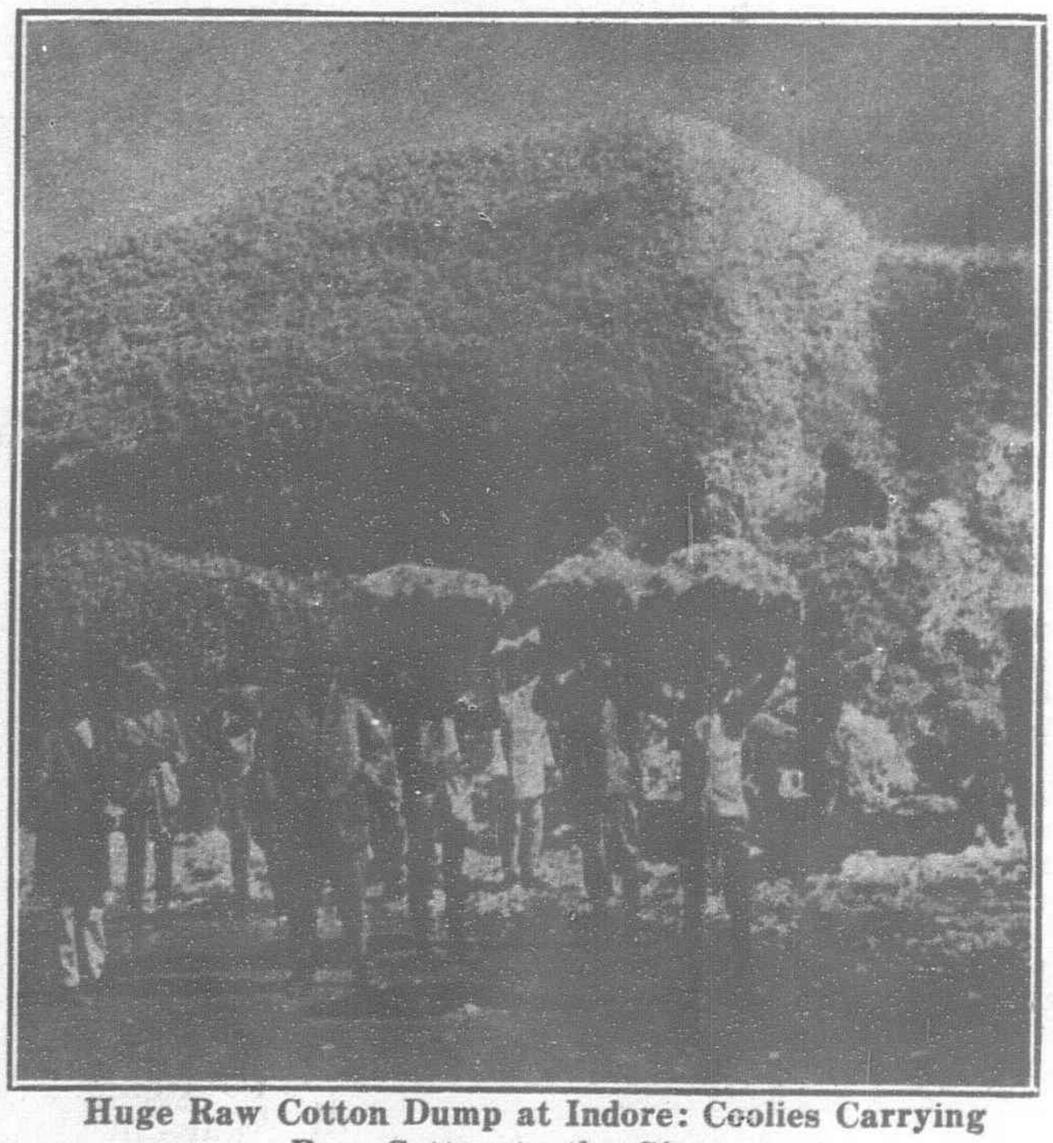
The Untouchables

In the meantime, let us ponder over a few facts about India. Out of a total population of 320,000,000, one fifth or sixty millions, belong to what is known as the " untouchables," whose very contact or presence within a prescribed distance constitues a defilement of the upper castes. A vast amount of literature has been written on this subject, but we will quote a few words from Sir Sidney Low's " A Vision of India."

> " There are some fifty millions of these " untouchables," a population greater than that of the British Isles. They are most numerous in Southern India, where the Brahmanical rules as to contact and intercourse are still rigorously maintained. Blacksmiths, masons, carpenters, and leather workers can pollute at a distance of twenty-four feet, toddy-drawers at thirty-six and cultivators at forty-eight feet, while the pariahs, who eat beef, have a pollution range of no less than twenty-one yards six inches."

Here is something for the American farmer to ponder over. The agriculturist, the backbone of the nation, cannot come within forty-eight feet of the upper classes, who eat the produce of his toil and batten on his misery. The situation of these social serfs is thus described in the last issue of the official report of the moral and material condition of India ;

" They are condemned to live far beyond the outskirts of the villages ; they are forbidden to use many of the public roads ; their very approach within a certain number of yards is accounted contamination. As a result of this, these depressed classes live in hovels and seem to delight in dirt. It would appear that the great majority have lost whatever innate love of cleanliness human beings may be expected to possess. They have no education because they cannot afford to take advantage of it even if it is proffered free. They have no outlook in life. They are condemned to the most degrading forms of



Huge Raw Cotton Dump at Indore: Coolies Carrying Raw Cotton to the Ginnery.

labor. But the root of the matter is less economic than social. Until these depressed classes can be put on a level with their fellow men, can be treated as equals and relieved from the moral degradation into which they have been thrown by centuries of scorn, it is difficult to do very much with them. Official orders can be passed in such directions as insisting that children of the depressed classes should be admitted into schools, and that members of these classes should have a proper house, and free access to the public water supply ; but in the absence of public opinion it is quite impossible for Government to enforce these orders which fly in the face of habits centuries old."

The last sentence is the usual apology for official inability or reluctance to deal with the problem in a severe manner. However, let us add a few more words in the same strain from Sir Valentine Chirol's latest book on India :

" To come into physical contact with them, or within reach of the shadow that their bodies may project, or even in some cases within such proximity as an elaborate table of distances forbids, involves a spiritual defilement which can only be purged by ceremonial ablutions or other religious rites. The low-caste or no-caste people are restricted to menial occupations of the lowest and most unclean kind. They are strictly segregated from the rest of the community. They can only dwell within their own quarter. They can only deal in particular bazaars. They are not allowed to draw water from any wells but those assigned to them."

" In the eyes of the Hindu, a Pariah and a European are on the same level. The Brahman repudiates the idea that anything good can come out of European education except the opportunities it affords him to perpetuate his hold over the lower castes through the favoritism extended to him by the British rulers of India. . . . . Throughout the whole of India the Pariahs are looked upon as slaves by other castes, and are treated with great harshness. Hardly anywhere are they allowed to cultivate the soil for their own benefit, but are obliged to hire themselves out to the other castes, who in return for a minimum wage exact the hardest tasks from them. Their masters may beat them at pleasure ; the poor wretches having no right to complain or to obtain redress for that or any other ill treatment their masters may impose on them. A Pariah who had the audacity to enter a Brahmin's house might possibly be murdered on the spot. . . . *In fact, these Pariahs are the born slaves of India ; and had I to choose between the two sad fates of being a slave in one of our colonies or a Pariah here, I should unhesitatingly perfer the former.*" There has been no improvement in their lot during the century of British rule since Abbe Dubois wrote the above for his classic on Hindu customs.

The Labor of the Untouchables

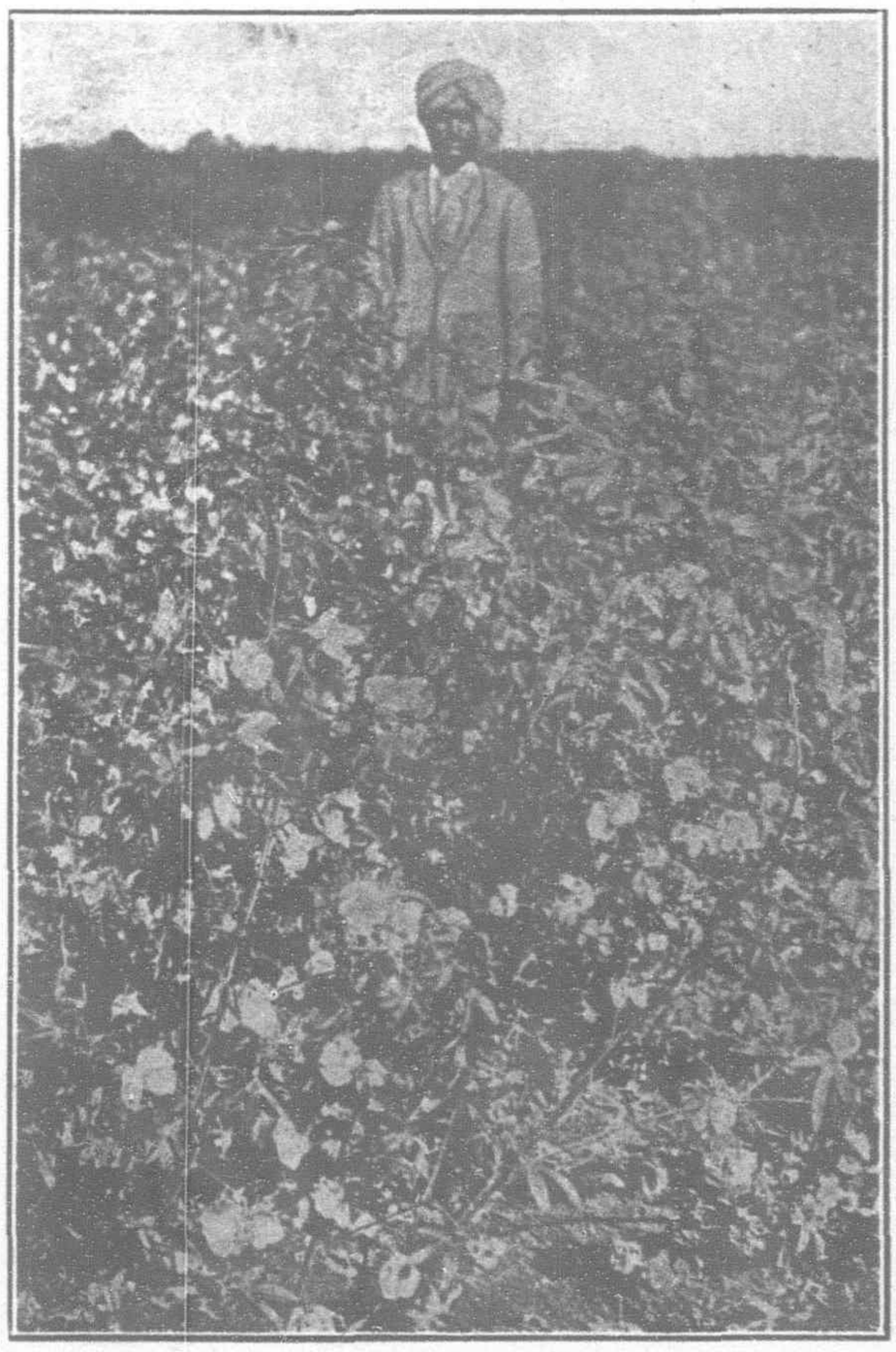
The actual condition of the depressed classes is faithfully described in the July number of *The Bombay Labor Gazette*, which says that a Hindu organization has recently been formed in the Punjab to obtain employment for these unfortunates. It appears that there is always a large demand for labor in this section, now imported from nearby provinces, while there are millions of " untouchables " who form an untapped source of supply at home. The promoters of the new Employment Bureau naively state that " *once their conservatism is shaken off which breeds their stay-at-home habits, they make excellent agriculturists, factory workers, artisans and domestic servants.*" This is thinly veiled Brahman propaganda, shifting the burden of their enforced religious prejudices on to the " *conservatism* " of those who have been taught by bitter lessons through the centuries what would happen to them if they left their segregated areas and mixed with other human beings. The article then goes on to make the remarkable discovery that the depressed classes have been practicing agriculture from time immemorial *as village dependents.* " They can become very good tenants on land in developing the canal colonies of the Province *once they get a comparative security of tenure.* Along with agriculture they have been practicing numerous arts and industries, such as shoe-making, weaving, bamboo-work, tanning, etc." It might be added that they have also developed to a high degree as dependents of the village Brahmans, the art of collecting and disposing of night soil. " Possessing hereditary skill as they do, they can become excellent artisans and factory workers once they have adjusted themselves to the needs of changed environments. As domestic servants there is none to excel the members of the Depressed Classes in loyal and disinterested service. *They have been serving the Hindu Community as their integral part for generations together.*" In other words, they have been and still are the patient slaves of the more privileged castes. What a travesty on civilization !

" *These conditions are a blot on Hinduism and the civilization which it produced and hard indeed to reconcile with the political aspirations of educated Indians who excuse or justify such a system, and yet contend that India is ripe for the most democratic institutions,* adds Sir Valentine Chirol.

Quite so. Yet here we have a people whose leaders arrogantly demand equality in the family of nations while rejecting the principle in their own social customs and relations. These same people demand and insist upon the principle of equality within the Empire of which they form a part, and make an issue out of the Class Areas Act of South Africa, when they reject the same principles in their daily life at home and herd sixty millions of their own kind into segregated quarters.

Class Areas and Color Bar Acts

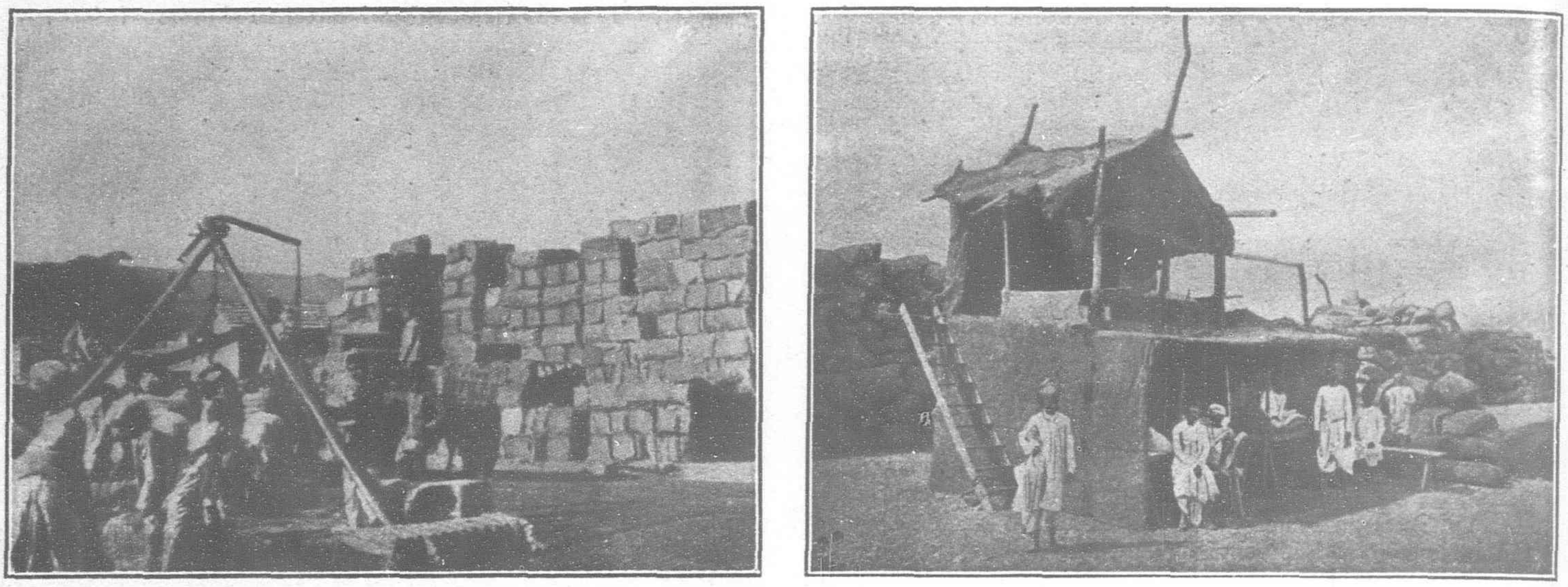
A farcical Round Table Conference is to be held shortly in which a commission appointed by the Indian Government will sit with a South African delegation to discuss the Class Areas and Color Bar acts passed by the legislature of the latter Dominion. The Indian Government is making a supreme effort to establish the equality of its subjects with the other citizens of the Empire, and South Africa supinely accepts such intervention in its domestic affairs. To the outsider, looking on, there is no call for such a conference. South Africa should take its stand firmly upon the principle which underlies the internal social laws of the Indian people, and politely but firmly give India to understand that the day when justice is meted out to its sixty million submerged classes and they are conceded their full rights as human beings and elevated to their proper status as citizens of the Empire, it will be glad to discuss with their representatives the question of equality and privelege to reside and conduct business by the side of the whites of South Africa.



Indian Cotton Field.

Outrage on Democracy

Democracy as we understand it in the west, can never gain a foothold in India under the above conditions, yet the other self-governing nations of the world have been forced to admit the Hindu into their League and give him an equal voice and vote in its deliberations. The greatest outrage ever perpetrated against Democracy was the admission of India in to the League of Nations, where, if her high-caste Brahmanical representatives could enforce their



The Cotton Green, Bombay.

ideals, the system of "untouchability" would be extended to many millions of Anglo-Saxon and European workers, debarring them from any voice in their own affairs and condemning them and their descendents for countless ages, to a life of slavery. We repeat, what is India doing in the League of Nations? Who let her in? The British wonder why the American people show no inclination to enter the League. This is one of the reasons, added to the greater one that India, masquerading as an independent and self-governing state enjoys a vote in the League, while in actual international relations she becomes part of the British Empire with no voice in diplomatic affairs. In international diplomacy, India does not exist. Why then, should she be entitled to a seat in the League Assembly? America will never enter into an association of nations in which she is outvoted eight to one by Great Britain and her family of Dominions and Protected States, while she has to deal with them all in every day affairs as an entity.

Education the Only Cure

British statesmen and writers declare that they cannot interfere with the religious customs of the Hindus without provoking an outbreak and therefore the only solution to "untouchability" lies in education, a slow process that may take centuries to bring about. If education is the only cure, at the rate the high-caste Hindu is being educated to the exclusion of the submerged classes, it is a foregone conclusion that the latter will never escape from their yoke of thralldom. The thought occurs, that if the Indian Government was really solicitous for the welfare of the millions under its care, and was as progressive as the much abused Government of Japan, it would set aside £50,000,000 for compulsory education and worry along on £7,000,000 for defense. Perhaps the problem of the submerged classes would then be solved within the next generation. If the poor, lower class Hindu cannot hope for relief from those of his own kind whose priveleged position and material interests are advanced by perpetuating his degradation, then it is clearly the duty of the British Government to see that he gets a square deal at whatever cost. A government which abolished the horrible practice of *suttee* without consulting the religious scruples of the Hindus, can certainly do something to ameliorate the lot of the sixty millions of Hindu people whose only excape from unending ignominy can come only through strong measures.

The oft-repeated formula under which Great Britain has so successfully escaped world criticism for the intolerable conditions in India, fails to convince. Only last month Lord Birkenhead in defending British policy in India against the accusation of being pro-Moslem, reiterated the familiar phrase; "The basis of British policy, he said, "was the proclamation of Queen Victoria in 1858 which not only granted religious tolerance but menaced all who strove to interfere with it. Any suggestion of British partiality to any sect, caste or creed was therefore ludicrous. By its impartiality British rule had maintained the *Pax Britannica* under an almost patriarchal government with none but the vaguest stirrings up to the war."

Hindus and Mohammedans Clash

The recent religious or so-called communal outbreaks in Calcutta, in which both Hindus and Mohammedans would have indulged in a general massacre if left to themselves, is putting the British program to a severe test. To preserve law and order, life and property and prevent bloodly reprisals by one sect upon the other, the government has been compelled to interfere in these carnivals of crime arising from a strict adherance to religious principles. If it can and must interfere in one direction, why not in another? If it feels called upon to protect the lives of Hindus and Mohammedans, has it not an equal and higher duty to those unfortunates condemned to a living death by their priestly overlords? A policy which was eminently proper in the slavery days of 1858 is out of place and ludicrous in a modern world of Democracy made up of free states governed by free peoples.

The British owe a debt to the low caste untouchables that obligate them by all the laws of common decency to stand forth as their champion in their struggle for emancipation from the cruel fate their own compatriots have fastened upon them and their children forever, and if this freedom cannot be attained without interference with preposterous Hindu pagan practices, then it is high time that force be applied to right the wrongs of countless generations.

The Old Madras Army

When Lord Birkenhead so proudly lauded the *Pax Britannica* before the House of Lords he must have recalled in his own mind, that this great influence for good was made possible as a result of the wars of conquest and pacification in which the leading part was played by the old Madras Army recruited almost in its entirety from these lowly and despised untouchables. Of this great army of eight cavalry regiments and 52 infantry battalions with nearly 200 years of honorable service behind it, only two regiments remain, with records as glorious and meritorious as many of the proud batalions of the Guards. These two regiments, the last of the conquerors, are recruited entirely from the untouchables. The more handsome Sihks and the valiant little Gurkhas who displaced the Carnatic batallions in the Indian Army may be more efficient in a modern war against the traditional European enemy of India, but it can never be forgotten that Britain's greatest military leaders ascended the ladder of fame through command of those regiments of untouchables of the old Madras Army which consolidated British power in India and gave unto England an Empire. These lowly untouchables gave their lives freely, believing in their hearts that the new conquerors would protect them against their hereditary enemies. The debt that Britain owes, Britain should pay in full. Her duty is clear.

Britain's Duty to Civilization

The performance of that duty even through the slow process of education may well lead to further bloodshed. It probably will, for as these sixty million unfortunates realize their true position and rights as human beings, they will, unless deprived of arms,

exact a terrible payment from their oppressors for the wrongs of ages. In the interests of modern military efficiency, the old Madras Army has been disarmed and disbanded in favor of regiments of equal strength recruited from the northern sects and hill tribes, at a time when the untouchables are waking up to their rights. Self-government in India under existing conditions simply means the concentration of political power in the hands of the Brahmanical minority, who, if they succeed in their present campaign to acquire control over the Indian Army, will perpetuate their infamous doctrines and rivet firmly the yoke of slavery upon the necks of their less educated brothers. From this one standpoint, it is Britain's solemn duty to civilization to retain absolute control over the military forces of India, for if this force as present constituted, ever passes under the direction of the Indian parliament, it will serve as the instrument to deprive the submerged classes of their rights as citizens and perpetuate their bondage. The success of self-government in India under these conditions is a menace to civilization. Once firmly established and recognized, no power in the world will be strong enough to destroy it. And wherever the Hindu theory is carried by emigration it will in time sap the very foundations of Western democracy and revive in all its horrors conditions diammetrically opposed to all those principles of justice and humanity upon which our civilization is founded.

The population of India is not all Hindu. Counting the 60,000,000 "untouchables," about one-half of the population profess other religious beliefs and in any determined effort to abolish the injustice, the Government could count upon the support of this element to any measure it might take to enforce the principle of equality. The only escape from the tyranny of the Hindu caste system under any self-government program for India lies in an alliance of all other sects with the untouchables to create a proper balance of political power. If the twice-born Hindu aristocrats refuse to associate with the submerged of their own faith, the Mohammedans and others might find in their support the means to equalize their present political inferiority.

Relentless British Justice

The Hindu religion embraces many sects and forms of worship. There is a caste in India formerly called the Thugs but now termed for convenience "the criminal tribes" whose ideals are expressed in terms of murder, arson, highway robbery, cattle rustling, and other such like religious rites.

"Their whole and sole mode of existence and support consists in the commission of crime. Without a gun, pistol or sword this vast army of law-breakers is able to successfully defy all the forces of law and order, and to carry on with all classes of society a guerilla warfare which appears to have no parallel in any other part of the globe. For courage, daring, ingenuity, and enterprise it would be difficult to find their equals. The lowest estimate of their number places them at one million. Many efforts have been made to deal effectively with this problem, by means of inducements to reform, restriction of movements and punishment, but generally speaking it has been admitted that the efforts have been a failure, and so the British Government called upon the Salvation Army to take a hand in the solution of the problem." says Commissioner F. Booth-Tucker of the Salvation Army in a recent article on the subject in *The Asiatic Review*."

Now these poor Hindus were simply living up to their religious beliefs and time-honored customs, yet the hard-hearted British Government very energetically departed from its self-imposed policy of non-interference in religious matters in order to protect the community against their rites. The Indian Government protects the high-caste land-owner from the religious rites of the criminal classes, why then should it not protect the submerged classes from the religious injustice of the higher castes ?

The Government of India with all the armed forces at its command, protected the warehouses and factories of the Bombay cotton magnates during the recent lock-out although only a few panes of glass were broken from throwing stones. Backed by all its resources and all its power, the Government of India will not hestitate to take drastic measures to protect property, but it hesitates to make one determined effort to protect the elementary rights of sixty million people entrusted to its care. No wonder the Soviet looks upon India as the most fruitful field for its propaganda and ultimate success in its war against Great Britain. The slightest relaxation in vigilance on the part of the British authorities to keep the Soviet agents out of India, would be followed by an upheaval. If such a catastrophe overtakes the British in India the fault will be largely their own, a retribution for their prolonged negligence in taking decisive steps to uproot the greatest crime against humanity that has ever existed in the world.

The civilized nations of the western world long ago abolished slavery and combined their armed forces to put a stop to the traffic. To her everlasting credit Great Britain took the lead in this great work of humanity. America had to pass through the throes of a disastrous civil war to free her slaves and enforce the principle of equality of mankind. What America did in 1865, Great Britain can do in India. What is the difference between the old slave-dealer and a priestly oligarchy or caste which dooms millions of its fellow-men and their unborn children to a state of abject social degradation and servitude, more vicious, more inhuman and more far-reaching in its consequences than the lot of the old-time slave ? If the might of Great Britain could stamp out one iniquity in Africa, she can at least make a determined effort to abolish a worse wrong in India.

The Duty of the State

Sixty million Hindus living under the enlightened rule of Great Britain are denied the elementary rights of human beings by the operation of religious intolerance. A principle that is morally wrong cannot be theologically right and when such practices sap the very foundations of morality and of equity and involve a violation of the eternal and immutable laws of Right, are established in the name of and under the sanction of a debased Religion, then it is manifestly the duty of the State to intervene by every force and means within its power to assist the helpless victims to obtain their lawful rights and status in the community. The Law operates swiftly enough for the protection of life and property even when its application comes into open conflict with Hindu religious beliefs and rites. What then, is worse, to steal the Hindu's cow or to steal his soul and condemn him and his posterity to everlasting servitude and degradation ? British justice is relentless enough in all other matters and it is difficult to accept their explanation that the problem of the "untouchables" can be solved only by education. Americans may not be great colonizers, but whatever their faults, the rest of the world may be certain that they never would have tolerated for over a century the condition that exists in India. We may have failed, but we would have had a good try at it, and, if we went down to defeat, it would be only after the issue had been fought out in the same manner as we faced a similar problem in 1861. Where there is a will there is a way, and if no other way can be found except through the long drawn-out process of education, then the best thing the League of Nations can do is to suspend India from membership until such time as the Ruling Power can implant in that country those elementary principles of justice and humanitarianism which alone can raise its people to a position of equality with the other civilized nations of the world and entitle them to a voice in its affairs.

India's membership in the League of Nations is an affront to the other member states, a complete surrender and negation of all those principles the Anglo-Saxon has fought for through the centuries. The defilement of Western Democracy by contact on equal terms with the Hindu conception of human relations, cannot by washed out by ceremonial ablutions or priestly legerdemain. The filth will infect. There can be no double standards in a league of free nations ; one for the democratic West and another to meet the special requirements of a Brahmanical caste whose participation in world affairs can be perpetuated only through the enforced degradation of sixty million human beings. Any attempt on the part of Great Britain to enforce this double standard on the nations of the West will lead to the ultimate disruption of the League, and her own ostracism.

The Bombay Mill Owners and their British champions threw a powerful boomerang when they threatened to invoke the punishment of the League upon Japan. The best antidote for India's own poisonous doctrines and flint-hearted intolerance would be a dose of her own medicine. We cannot imagine any quicker or more effective remedy for bringing the upper and articulate castes of India to a realization of their proper place in the modern world than the application of a League boycott of their products or their exclusion from its deliberations. Once these twice-born gentlemen of high degree are made to understand that their own position in the family of nations depends upon their recognition and every day practice of the principle of equality amongst themselves, there is every reason to believe that they will soon discard their hide-bound religious prejudices for more modern ideals of human relationship. By all means take the issue to the League or the International Labor Conference and be sure that a plain-spoken American is invited to take part in the debate.

Why Bombay Mills Cannot Compete with Japanese Mills

Gross Inefficiency, Mismanagement and Corruption in Bombay Mills

I REFERRED in the first article to the corruption, inefficiency, mismanagement and a host of other evils connected with the Bombay cotton mill industry, and after personal talks with many people in Bombay competent to express an opinion on the subject, I see no reason to qualify the indictment. It stands. If it errs, it does so only in that it is not strong enough. There are no words that could adequately describe the nepotism, graft, disorganization, corruption, gross ineptitude, downright dishonesty and absolute disregard for all moral and ethical standards that prevail in an industry whose spokesmen have the hard-boiled effrontery to heap opporbrium upon Japan because they are unable to honorably compete with her in an open struggle for business. This is also a sweeping statement, but the facts as they have come to me, fully justify it.

The success of any industrial enterprise depends primarily upon the efficiency of its management and labor. Economy in working, cost reduction and industrial efficiency are determined by scientific management which from all the evidence procurable, is not to be found in India. Parsee and Gujrati managers have gradually displaced Europeans in the Bombay mills with the result that graft in all its forms has fastened upon the industry, until with few exceptions, the mills are unable to stand up and meet outside competition.

It may be difficult to produce legal proof of graft and dishonesty, as whoever might have the temerity to give evidence establishing the truth would be boycotted, penalized and driven out of Bombay. Indian and foreign merchants in possession of such facts dare not disclose them, but everybody I talked with insisted that dishonesty from the management at the top, down to the lowest employee in the mill, was the real reason why the Bombay industry failed to prosper when it had to meet competition. The stories that were retailed to me in confidence, transported me back to China. The trouble with Bombay is the same that prevents a Chinese registered industrial company from paying dividends. Bombay, however, goes China one better for in addition to a board of directors devoid of any sense of obligation to the shareholders, it has superimposed the managing agents system, a kind of a proprietary parasite which exacts its commission coming and going on every transaction connected with the enterprise. Bombay newspapers are most guarded in their references to or in condemnation of this system, but even these organs of opinion have been compelled at times to protest against the deep rooted evil. *The Indian Textile Journal* of August, 1925, after stating that "leakage and even defalcations in the administration of cotton mills has been known to shareholders," reprinted an editorial from its November, 1899, number, which notwithstanding the lapse of years and a marked improvement in the management of some mills, still faithfully portrays existing conditions as a whole.

A Clear Cut Exposure

"We have in these columns exposed again and again the rascality and rank dishonesty with which large sections of our mill industry are saturated. It is not possible to be as specific and definite as we might, and name those concerns and persons whose affairs merit exposure. We must leave the law courts to do this, bit by bit, as cases come before them. But we should insist upon the urgent need there is for reform, not because the mill industry is worse than many other industries which might be cited, but because it is the chief industry of our city, and because the men therein engaged are some of the most wealthy and influential of our citizens. And further, until it is definitely recognised that to successfully rehabilitate the Bombay cotton industry, a higher degree of industrial morality is the one essential that is wanted, we may expect the mind of the public to be continually diverted to the consideration of factors in the problem which, to a great extent, are quite beyond our power of modification. We cannot alter Japanese and Chinese competition, we cannot control the monsoon, we cannot even apparently do much to improve cultivation, and competition with Manchester in the higher counts of yarn and fiber fabrics is fraught with many impediments. But the glutted market in the Farther East is entirely of our own making, our miserable mismanagement is our own, our rapacious dishonesty is our own, and local shareholders have only themselves to thank for divided counsels, a lack of energy, and a want of intelligence which constitute powerful temptation to men whose wits are sharper than their own."

The above editorial furnishes ample evidence that Bombay has always cried like a spoiled fat baby the minute it failed to make handsome profits. As far back as 1889, when the Japanese cotton industry was in its infancy and only a few small foreign-owned mills were operating in China, Bombay was letting out a wail because it could not monopolize the Japanese and Chinese nipples as well as those of its own parent. The above editorial went on to admit that "the administration of joint stock companies in Bombay can by no means be said to be entirely free from irregularities and profiteering" and then it backs-water and deprecates the sweeping condemnation of the Mill Agents "whose efficient management and regard for the workpeople are reflected in the annual reports and in the social and welfare work for the operatives who find remunerative employment with housing accommodation, medical relief and other conveniences which did not exist in previous years."

Three months earlier, in the May number of the same magazine appeared an article on "The Management of Indian Cotton Mills" which fails to bear out the above rather effusive and misplaced praise. This article says:

"The management of Indian cotton mills has been recently subjected to rather severe criticism by some of the local press, and even a paper, owned by a prominent millowner, has had to admit that reforms are necessary in the management of the mills. An Anglo-Indian daily has been strongly criticising the system of management by which the agents take their commission not according to the profits but according to the total production. There is little incentive to work economically, whereas it fosters a tendency to extensive but wasteful manufacture irrespective of the demand in the market. Another contemporary—a nationalist daily—has, in a series of articles and letters, levelled serious charges against the millowners. It is asserted that the industry in Western India is controlled by a close corporation of a few families and their friends. The managing agents appoint directors who are either related to them or are so intimately connected as to be ineffective in their control. The directors are all subject to the agents whose conduct of business is not at all influenced by the majority of shareholders.

A more serious allegation, however, has been made, though not proved: It is said that the managing agents and directors of a good number of mills who hold a large block of the shares, not only speculate in their own shares, but even go so far as to window-dress the balance-sheets so as to gain in the markets.

The millowners themselves, despite all their expressions deploring the lack of efficient men in the industry, have not made any appreciable attempts at personal improvement. Many of the families have been in the business for more than a generation, yet few of the younger members, though frequent visitors to Europe and America, have been trained in textile technique. What is wrong is not what Lancashire makers supply but the workmen. Labor cannot be efficient unless it is well fed and well housed, and this duty many employers leave to the benign State while they profit from the work.

It must be mentioned also that some of the managing agents of large mill companies share the control not only of the mills or of companies that sell the goods, but also of the companies that supply the raw cotton and of companies from whom they buy the machinery and stores. If business be so managed and if one firm were to be so inter-related, whereas the firm would seldom suffer, the different shareholders could not be sure of their full profits. Their managing agents have an interest in every concern and they could benefit one company at the expense of another.

The Japanese cotton trade in India is so well financed that the Japanese can buy any kind of cotton at any time and any place in India. It is not only their organisation in transport and manufacture that benefits them, but even that in the buying of the raw material itself. And in strange contrast to this the Indian mills can neither select nor buy as they choose. The capitalists engaged in the industry have not yet seen a way to form a textile bank out of their resources so as to effectively finance their trade.

The financing of Indian mills is unique. Formerly the mills were mostly owned by a few persons or firms. But during the boom period, many of them were sold to public companies at enormous profits, and many mills therefore are now overcapitalised. But the usage of calling the managing agents, "millowners" still persists not only as an old fiction but as a reality, for the simple reason that the managing agents, even though not always possessing the majority of shares, are virtually owners because of their supreme control of the companies.

Another unusual procedure is that the managing agents act either as securities for the mills to the banks that lend them money or even act themselves as well secured bankers of their own principals. The directors mortgage the assets of the companies to their managing agents. There are perhaps no cases where the agents have lost any of their money either as securities or as lenders. But oftener they obtain a very high rate of interest for their loans and it may be here mentioned that the management is very wealthy, even richer than the companies they control and finance. The old system of borrowing through brokers is no more prevalent as before.

The mill industry and its directors are entangled into too many commitments. There are many individuals who have a seat on a number of boards and therefore have to sacrifice their independence in case there be a conflict of interests. Firms and companies too often venture themselves into various entanglements and even speculate in business which is not their primary aim and launch out boldly into novel schemes which are sure to end in disaster. Mill companies not only manufacture cotton, but also speculate in land, engage themselves in insurance (mutual), and in addition to all this, their managing agents—on whose fortunes the future of the companies depends —indulge in all possible business, not only as investors of capital, but even as enterprisers."

Japan's Cotton Organization in India

Because of their wide-spread purchasing and selling organization in all the principal producing and consuming districts of India, throwing them into intimate relationship with every class connected with the cotton industry from the raw product to the finished material and its marketing, the Japanese have unexcelled opportunities for acquiring the most confidential information in regard to irregularities. Characteristic of their general attitude when attacked unjustly, the Japanese have refrained from making use of evidence which would place their opponents in an unenviable light. However, the uncalled for attacks of the past few years has aroused some of them to speak up and tell Bombay to put its own house in order before attacking its friends. A most illuminating article along these lines in the form of an interview with Mr. T. Tamagaki, the Bombay agent of the Japan Cotton Spinners Association, appeared in the *Bombay Chronicle* of August 7.

Even in this straightforward indictment, Mr. Tamagaki was most careful to save the faces of his Indian business associates by merely indicating that

"If the Bombay mills could check corruption and other malpractices and improve their managements, they could successfully compete with foreign mills, because India has the natural advantages of raw cotton and a great home market". . . . The Bombay Millowners must first put their house in order before asking the Government to increase the import duty on foreign piece-goods which would penalize the cotton growers and the consumers of India. If, after improving their management, they still feel any need of protection, then they may ask for raising the import duty on finer goods only, but not on the coarser goods consumed by the masses." Asked about corruption in the Indian mills, Mr. Tamagaki, said, "that the task of the Tariff Board was very difficult in regard to this point because merchants and others who knew about this would not like to give evidence for fear of losing their business. And as these practices are carried on in secret, outsiders would not be able to give any actual proof of it. But the Tariff Board must fully investigate this point, because it would make out a *prima facie* case for the improvement of the management of the Bombay mills." And then Mr. Tamagaki drew attention to a point which more than any other explains why Japan has come to the front not only in the cotton industry but in many other activities. Asked whether the Japanese mills are managed by agents as is the usual system in India, Mr. Tamagaki said that in Japan the directors themselves manage the mills. "These directors generally possess an intimate knowledge and experience of the various departments of the industry, *as they have risen from the lowest rung of the ladder in the mills.*"

Here is the secret, the same secret which underlies American efficiency and success; *democracy, fellowship and equality;* a realization amongst the workers that there is room at the top if they make good. The captains of industry in Japan, the heads of great financial corporations, merchants, and their agents throughout the world are all men who have risen from the bottom of the ladder, men who understand every branch of the business confided to their management and who are imbued with a patriotic determination to win out, not only for themselves but for the nation whose very existence depends upon their success and honorable trading. That is the spirit that has carried Japan ahead in the post-war trade struggle, a spirit that cannot be duplicated in any other country. In open and honorable competition against such scientific management the graft-ridden mill industry of Bombay stands no more chance than a gallon of ghee at a Brahman feast.

The Managing Agent

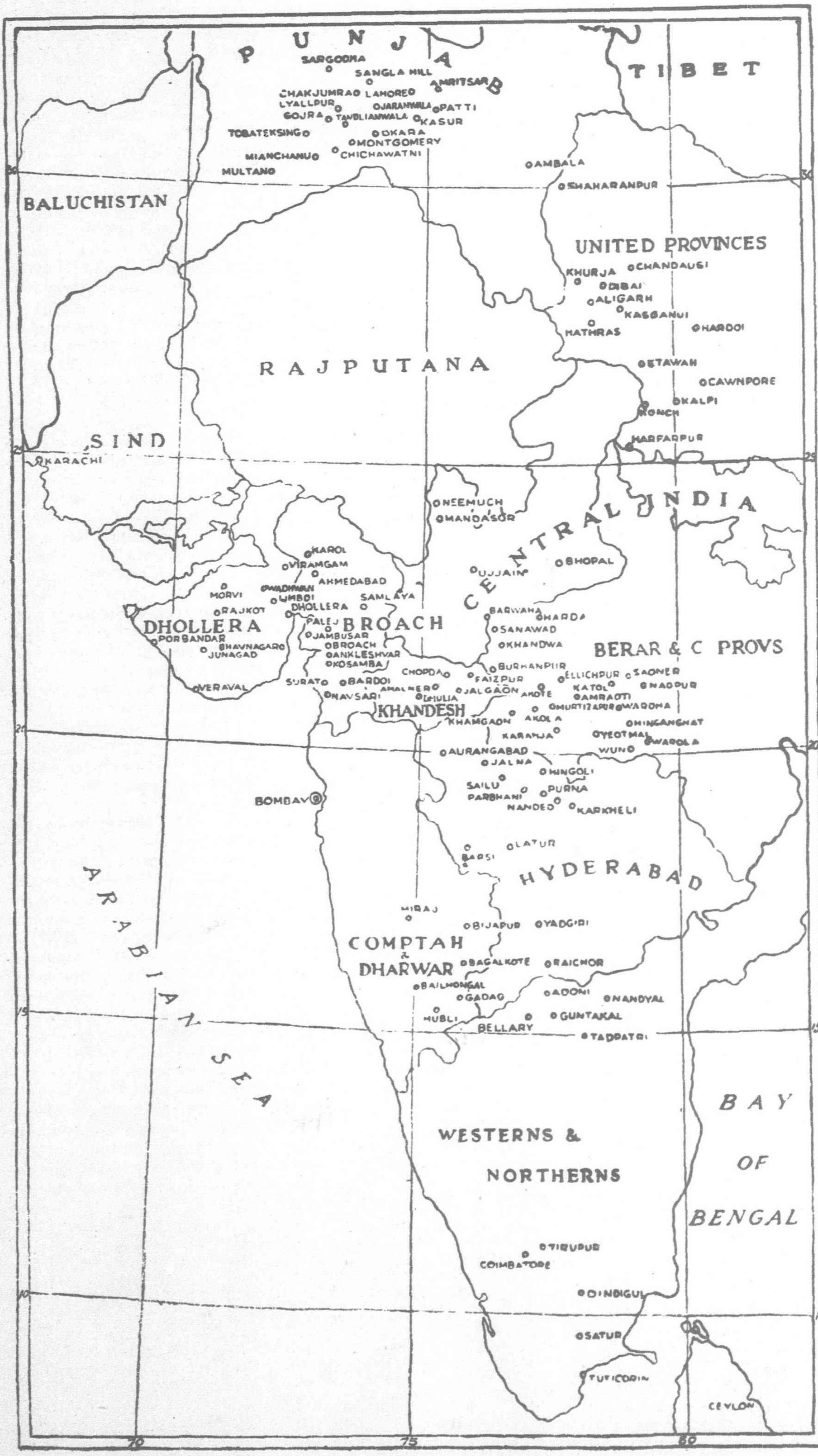
The managing agent invariably waits until his mill or mills actually needs a new supply of raw material before ordering it and is therefore subject to the violent fluctuations of a highly speculative market and the incidental charges which accumulated stocks in the hands of dealers are subjected to. He then orders, let us say, one hundred bales of the best Broach quality of Indian cotton to be delivered at his mill. In the first place, it is almost impossible to purchase standard grades in India due to the practice in the ginning factories of mixing inferior with higher grades, an illegal adulteration that even the Cotton Inquiry Board several years ago severely condemned and recommended the enactment of regislation to penalize the dishonest ginners. The signed order for one hundred bales of best grade cotton starts on its travels from the managing agents desk and somewhere down the line in his office force it reaches an employee who makes a private arrangement with the cotton broker which transforms the order into one for 100 bales of second grade cotton, or perhaps, fifty of first and fifty of seconds. Further intervention on the part of expert grafters results in the final delivery to the mill of say, ninety bales of third grade cotton. Everybody connected with the transaction, even to the carting contractor, gets a juicy rake-off, with financial consequences most disastrous for the shareholders. The managing agent in most cases loses nothing as he gets his commission from the broker on the original order.

Does the graft end here? Not by any means. There are still a number of trusted employees in the mill, who for obvious reasons, cannot be let into the secret deals of their immediate superiors, so they get theirs in other equally dishonest ways. Owing to the poor quality of the labor and material and dishonest supervision, large quantities of waste accumulates during the passage of the raw cotton through its various stages of cleaning, spinning and weaving. Here is where the waste clerk comes in. According to a writer in the *Bombay Chronicle* the "waste clerks in many mills are often richer than the managers. Higher grades of wastes are smuggled out as lower, good cotton getting mixed with waste or often cotton itself passes out as waste. Single consignments of goods, cotton stores or fuel, can enter the compound once but can very easily be invoiced and paid for twice!"

In very few mills in the Bombay district is any attempt made to utilize this waste which averages 33 per cent. on the total of raw cotton to finished cloth. This magnificent squeeze is sold to dealers largely for export and comes back to India in the form of manufactured products. During the boom years when immense profits were being made and there was no market for this waste, it was either thrown away or burnt.

With few exceptions, the millowners or managing agents, engage in a general mercantile business embracing insurance agencies, mill stores, machinery, banking, cotton and cotton seed and are heavily interested in other industrial enterprises. All raw cotton and supplies for the mills under their management are purchased from within their own organization, on which they not only benefit from the direct and exorbitant profits but from the commission levied as agents, or, in some cases where such a system invites too much public criticism and in order to preserve some sense of decency, relatives or caste cronies are financed to open mill stores agencies and the business placed through them. The toll is levied, if not openly, then secretly. Tenders accompanied by specifications which would throw the mill stores business open to general competition are rarely invited, or, if they are, the system works true to form by orders invariably being placed with some one in the family ring. No tests are applied to check up qualities of stores purchased, with the consequence that the lowest quality find their way into the mills as first class materials. In some mills, managers, storekeepers, spinning and weaving masters, dyers and engineers, receive a monthly bonus from dealers in order to assure the acceptance of their inferior grade of goods. To quote the writer in the *Bombay Chronicle;*

"I shall go a bit further and say that I have seen dyers emptying whole drums of colors and chemicals into the gutters in order that fresh indents may be placed and their commissions increased. This practice is often followed in the case of goods bought by millowners against the wish of the "Masters". To prove that the consumption of goods is heavy they do not hesitate to let the material flow down the drains."



Japanese Scientific Trade Organization

One of the Reasons why Japan can purchase Indian raw cotton, transport it to Japan, manufacture it into finished products, ship them back to India and compete successfully with the Indian mills in their own market.

This Map shows the Distribution of the Cotton Agencies in India of the Toyo Menkwa Kaisha (The Oriental Cotton Trading Company, Ltd.), the Cotton Department of the Mitsui Bussan Kaisha, incorporated as a seperate concern. This Mitsui enterprise has nearly 160 agencies and sub-agencies covering the important producing and consuming districts of India.

The map showing the branches of the Mitsui cotton organization in India is sufficient evidence of how the Japanese are able to undersell the disorganized and corrupt Indian industry in its own territory. As outlined in the article quoted above, the Japanese through more efficient organization, intelligent financing and guaranteed shipping facilities, obtain their raw cotton in India at prices much lower than their Indian competitors. In contrast to these methods, the Indian mills operating under a disorganized and intensely individualistic managing agents system, can neither select or buy the raw material as they chose. This guarded statement conceals one of the greatest evils attached to the Indian industry. It is graft elevated to the—the degree, in which everybody all long the line who has anything to do with the selection, purchasing and delivery of the raw cotton, gets his rake-off at the expense of the shareholders.

The graft does not end here by any means. As it goes down the line to the under-foremen who do not handle materials or stores, it passes outside the sphere of petty and wholesale robbery and takes its toll from the underpaid and underfed mill hand, mulcting him on every side until the poor devil is lucky indeed if he leaves the mill compound on pay-day with a fair percentage of his wages. Once out of the clutches of his taskmasters he runs the gauntlet of waiting Shylocks, tradesmen and hovelowners who waylay him and take away, forcibly, if necessary, what few rupees the mill gang have left to him. No exception is made of women workers, who pay their regular commission to the female harpies who act as forewomen.

"These naikins (forewomen) as a class are persons of low morals—some of them keep dadas" (hooligan mill-hands) while others make use of their power over their subordinates to force them into prostitution. Even some of the clerks (especially those attached to the reeling department) and the jobbers (foremen) take advantage of the helplessness and poverty of the women. Many a girl and woman-worker is exposed to danger from this source," declares Mr. A. R. Burnett-Hurst in his recent study on "Labor and Housing in Bo bay."

These are the bare ou of the seamy side of the Bombay cotton mill industry. The v ole industry from top to bottom is permeated with graft. From the time the raw cotton is picked through all the stages of ginning, baling, transportation, manufacture and sale it pays toll to the grafter. No industry, except when operating under abnormal war-time boom conditions, can hope to pay dividends under such mismanagement when it faces outside organized competition.

Labor in Bombay

Nowhere is Labor Treated with so Little Humanity

INCOMPETENT and corrupt supervision, in itself will demoralize the most efficient and willing workers. When these are drawn from the lowest, the poorest and most ignorant strata, and exploited by their employers, neglected by the state, preyed upon by tradesmen and condemned to perpetual servitude by society, their efficiency can never rise above the level of its environment. In addition to a hopelessly incapable management indifferent to everything but its own private gains, the cotton mill industry of Bombay staggers under the handicap of a labor supply wholly deficient in skill, temperament, adaptability and physique.

Out of some 135,000 textile workers in Bombay only about one-tenth are city-born, the remainder being drawn from the agricultural classes of the near-by provinces when work on the land is slack. The demand for mill-labor is always greater than the supply, necessitating continuous recruiting on the part of the employers, who instead of combining and maintaining a central labor bureau directed by experts, leave this most important task to understrappers who use their position to prey upon the unfortunates who fall into their clutches. The first concern of an enterprise placed in such a precarious situation, should be the welfare of its workers but the Bombay mill industry controlled by a group whose philanthrophies in other directions are widely enough advertised, is dependent for its labor supply upon the personal activities of the foremen in charge of the various departments. Each foreman is held responsible for keeping his own department supplied with the required number of hands; failure in this resulting in his dismissal. As a result, these men resort to every device to lure the ignorant countryman into the city in order to create a surplus upon which they can draw as required. The poverty stricken countryman, to maintain himself or his family until he gets a job, is forced to borrow, and once in the power of the money-lender, rarely escapes from bondage. Employment, as a rule, is only found by bribing a foreman, timekeeper or clerk.

Inhuman Treatment

The whole question of labor in Bombay is highly controversial, but as the Mill Owners' Association in that city has seen fit to invite attention to some of the unwholesome conditions surrounding the employment and treatment of labor in Japan, the inference is that their own record is above criticism. The evidence, however, shows clearly enough that nowhere in the civilized world is labor treated with such an utter disregard of the first principles of humanity, as it is under the management of the Bombay mill industry. In such a brief article, it is only possible to invite attention to some of the high lights of this situation. First and foremost, typifying the general Brahmanical and high-caste indifference to the welfare of those below them in the human scale, is the matter of housing. With the rapid growth of the mill industry, thousands flocked to Bombay to seek employment, only to find that no provision had been made for their housing. Tenements of the lowest and flimsiest order were erected by greedy landlords and packed like sardines with human tenants. Open sheds, in which domestic animals shared the space with the workers, covered the swampy, malarial outer areas, traversed by open pestilential drains. There was no provision for proper sanitation either in the city proper or in the outlying open spaces. The ground of Bombay became saturated with sewage, reeking with the odor of nightsoil, with the result that when the bubonic plague hit the city the people died like flies. The millionaire mill-owners and landlords, luxuriously domiciled in the higher and more salubrious surroundings of Malabar Hill, did nothing to relieve or improve these intolerable conditions until the municipality to preserve its self-respect was forced to intervene after the terrible outbreak of plague which nearly depopulated the city in 1896.

To carry out the reforms, the Bombay City Improvement Trust was created in 1898 for the express purpose of making new streets, opening out crowded localities, reclaiming lands from the sea to provide room for the expansion of the city and to construct sanitary dwellings for the poor and the police. Even this imperative reform, instituted to protect the health of the whole city and preserve its standing as a port, met with the most stubborn resistance by both landlords and tenants who resented the compulsory acquisition of property and demolition of unsanitary buildings. In summing up his description of the work of the Improvement Trust, Mr. A. R. Burnett-Hurst says:

"It must not be expected that with the provision of these dwellings the evils associated with Bombay housing and sanitation will entirely disappear. Tenants will have the benefit of sanitary structures and more light and air, but families will still be housed in one-room tenements. Moreover, it seems too much to hope that the habits of the people will change in their new surroundings. Nevertheless, the measures adopted by the Government of Bombay are a step in the right direction and should lead to a reduction of disease and mortality."

A commentary on the present housing situation in Bombay is found in the Report of the Prostitution Committee of that city, which says:

"The rooms in which the lowest class of prostitutes lived were more unclean and more filthy than those of the average mill-worker in Bombay.

The insanitary and overcrowded condition of the brothel area, though perhaps not worse than in some other parts of the city, is particularly horrible in their case."

In other words, the housing situation, although somewhat improved, is still abominable. The same old evils remain, a menace to health and an insurmountable barrier to the success of any welfare scheme that might be applied to better the living conditions of the workers.

Welfare Work Unknown

Welfare work, as understood in Japan and other enlightened industrial countries, involving voluntary effort on the part of employers to improve, within the existing industrial system, the conditions of employment in their own factories, is unknown in India. Such a conception of the duty of the high-caste employer towards his inferiors, strikes at the very root of his religion and traditions. It has no place in his philosophy. The same author quoted above, is authority for the following statement :

"Employers gave little thought to the improvement of the well-being of their workpeople until the recent industrial unrest, when the Press and the Social Service League persistently drew their attention to the evils which had arisen from neglect of their responsibilities to the workers. It was then that two enlightened mill-agencies approached the League and offered to finance schemes of "welfare work" in their mills if that body would undertake the work of administration."

The author then goes on to describe the first steps that have been taken by this organization to provide medical aid, maternity benefits, *crèches*, recreation, baths, and other benefits for the workers and concludes his observations as follows :

"Welfare work is not conducted without difficulties. The success of a particular branch of work depends on the sympathy and active assistance of the management. Some managers realize the value of the work, while others regard it as a waste of money. Again, the ignorance and illiteracy of the mill-hand make the welfare worker's duties more arduous. The welfare-worker is regarded with suspicion, and the mill-hand is encouraged in this belief by the jobber, mill clerks, etc."

The author fails to remark that the success of the welfare worker loosens the hold of these harpies on their victims, and even when the management might be favorably disposed to grant facilities for an outside organization to undertake the work that should be directed by themselves, their understrappers combine to defeat its purposes. Mr. Burnett-Hurst continues :

"Upon the opening of each new branch of activity, be it *crèches* or schools, recreation clubs or works committees, new difficulties arise, created very largely through the ignorance of the worker. Nevertheless, despite these difficulties, valuable pioneer work has already been performed. The credit for what has been achieved until now rests with the Social Service League and with the two firms of Messrs. Tata Sons, Ltd., and Messrs. Currimbhoy Ebrahim and Sons, Ltd., who have financed the schemes. The admirable examples of what can be accomplished remain to be followed by others."

In plain words, only two mill owners in Bombay have instituted humanitarian measures for the betterment of the working conditions of the thousands upon whose labor depends their own prosperity and that of the city. Yet the spokesmen for these high caste millionaire millowners, hereditary foes of labor imbued with the accumulated prejudices of countless centuries against any alteration in a system which crowns them Lords of Creation, have the audacity to belittle the wide-spread system of welfare work conducted by the Japanese cotton mill owners for ameliorating the living conditions of their workers !

The answer of Japan to these uncalled for accusations is found in the following indictment of the Bombay Cotton Mill Industry taken from *The Times of India*, April 5, 1917.

"When we survey the condition of the industrial proletariat in Bombay we are filled with shame and anger. . . . What is the constant complaint we hear from large employers of labor ? It is the actual shortage and unreliability of the labor force. Both these drawbacks arise directly from the abominable conditions in which our industrial proletariat lives. It is not a question of wages ; on the whole the wages are quite sufficient to keep the operatives in health and decency, if the housing problem is solved. . . . All our labor difficulties arise from this one overwhelming fact—that we have not got, and we do not deserve to have, a permanent and reasonably contented labor force. Lacking it, we are driven to all sorts of shifts and expedients to mitigate the evil. Jobbers are left in almost uncontrolled mastery of the mill operatives, because that is the only way in which labor can be secured. Wages have to be kept in arrears, because that is the only way in which labor can be kept in steady work. In these and various other ways the labourer does not secure the benefit of the fair wages which he is actually paid. Nor will he until two great changes are effected. First we have to see that every workman has a chance of securing decent housing at a reasonable rent. . . . Next we have to secure, through the universal diffusion of primary education, that every adult is placed in a position of self-protection against the usurer and the jobber. . . . if we neglect our labor force, as we have neglected it, as we are continuing to neglect it, then we are deliberately and willfully sapping the foundations of our future industrial greatness."

The same newspaper in its editorial article of December 8, 1925, reiterates the above by saying :

"If we go down to the root forces in manufacturing economics, we find that finance, markets and supplies of raw material being on a sound basis, the prosperity of any Industry depends on the efficiency of its labor force. How do we stand there ? Bombay labor is not efficient and the root cause of its inefficiency is absenteeism and the wretched *budlee* system. So long as these conditions obtain the Industry is not out of the wood."

Sir Stanley Reed in an introduction to Mr. Burnett-Hurst's book, summarizes the condition of the Bombay mill-worker in the following words :

"*Those who look below the surface are convinced that the whole prosperity of India is not so much a question of tariffs as of increasing the efficiency and stability of the labor force.* . . . The supply of labor in Indian Industries is never sufficient and in relation to quality and quantity of output it is not cheap. The reasons for this are found deep down in the social conditions of the people. . . . Employers are compelled to depend upon a fluctuating labor population, consisting largely of semi-agriculturists, who migrate hundreds of miles and only reside in the towns for part of the year, returning to their villages when their labor is required for agricultural purposes. The chief consequences of this incessant migration are a low standard of technical efficiency, an absence of responsibility arising from treatment of factory work as a disagreeable necessity only to be practiced long enough to enable the worker to earn enough to return to his village, and a social disruption separating the worker from his home and his family for long periods. This, in turn, has its roots in the deplorable living conditions in the chief centers of industry. . . . The whole future of Indian Industry, based as it must be on an efficient and contented labor force, is bound up with an improvement in the hygienic conditions in the great industrial centers. . . . Two other evils spring from the migratory habits of the Indian workman. One is that higher wages are not always, not even generally reflected in the betterment of the recipient, they are too often lost in increased absenteeism, even now reckoned as high as twenty per cent. The other is the existence of large parasite class preying on the worker. Heavy toll is taken of his wages by the money-lender, the jobber or labor-supplyer, the foremen and the liquor sellers, with more recently the "bucket-shop" keeper. At almost every step the wage-earner is mulcted of some fraction of his wages."

In addition to the above methods of holding up the wage-earner at every step, there is also the system of fines imposed on the worker by the mill owners for every conceivable infraction of the rules. These average eight to ten per cent. of his wages ; surely a heavy toll.

Labor Inefficient

Much might be written about the inefficiency of Indian labor in general as well as the mill-hand, but I will confine my comments to quoting from an article published in the official Bombay Labor Gazette of July, 1926. The article deals with only one of the causes underlying the decline of the Indian textile industry ; the absence of the use of up-to-date labor-saving machinery and its result on the output per textile operative in India in comparison with that in other countries. This comparison showed that whereas an operative in Bombay worked on an average only 40 spindles, his contemporary in Italy worked 80 spindles, in Alsace 100, in Switzerland and Bavaria 150 each. The German operative worked 170 spindles and in England 333 spindles or over eight times as many as an operative in Bombay. There can be no comparison whatsoever between the spindles managed by a single girl-operative in the United States. Bombay's 40 spindles per operative would appear as a drop in the ocean before America's 896 to 1,200 spindles per operative. Similarly, a weaver in Bombay has been managing to this day only 2 ordinary power-looms ! The British weaver handles on an average 4 ordinary looms and 8 to 12 or more automatic looms and an American weaver manages 15 to 20 automatic looms ! There is no need to carry the investigation into the efficiency of the Indian textile worker beyond this point.

Enough evidence is produced in the above reports to prove conclusively that the question of wages, working hours, single or double shifts, employment of women and children at night or any of the highly technical points connected with the number of counts, quality of cloth, government aids or steamship subsidies, are altogether outside the controversy. All the arguments advanced by the Bombay Mill Owners' Association to bolster up their case and throw the blame for their failure on to Japan, fade into insignificance before the evidence of their own incompetence and unfitness to direct a great industry.

Government Intervention Required

The conditions surrounding the Bombay mill industry clearly call for the most energetic government intervention for the protection of the workers. Of what avail is the strict imposition of a ten-hour working day when the mill-hand is victimized in every other direction and has no redress from society or escape from a system which battens on his ignorance and helplessness? The haste with which the Government of India ratified the Washington Convention has provided occasion for British newspapers to laud its humanity and fine example, but the most superficial investigation of conditions in India tells the impartial observer that its benevolence ends right there. It was easy enough to ratify the convention and apply its provisions, as the establishment of a ten-hour working day and abolition of night work for women and children had been previously conceded by the mill-owners as the result of prolonged strikes. It is a simple enough matter to regulate and supervise the working conditions of two hundred thousand cotton mill operatives, but could the Indian Government apply and carry out the most elementary measures for the betterment of its sixty million serfs employed in agriculture and other occupations? Could it even apply the international labor resolutions to cover the operatives in the jute industry? *The Bermondsey Book* for July contains a description by an Indian worker of his life in the jute mills for which he was recruited by the Hooghli Emigration Contractor *for a period of five years at a weekly wage of 6 rupees!* (*$2.12 gold*). He works 11 hours a day, pays a commission to the foreman and paying clerk, is subjected to fines and is bled two annas (five cents) for every rupees worth of stores purchased. He is glad to save at least one rupee a week. He is constantly under the taskmaster's eye and labors from day to day with the sole idea of putting by a little to clear the debt from the land at home. In other words, the jute-mill worker is recruited and held in peonage for five years under a contract recognized by the government which he cannot escape from. The reputation of the Indian Government for humane consideration for its workers, would be greatly enhanced if the Washington decisions were applied to the jute as well as the cotton industry. Perhaps, however, because the jute industry is a monopoly controlled by British capital, there is no reason for applying the same regulations as Lancashire demands for the Indian controlled cotton industry.

The real test of the humanity of the Indian Government is its attitude towards the amelioration of the living conditions of the millions, not a paltry two hundred thousand mill workers concentrated in a few cities.

In 1922, India was admitted as one of the eight countries of industrial importance after protracted examination of the grounds of her claim by experts appointed by the League of Nations. "India therefore assumes responsibility for giving effect to the decisions of these Conferences," adds *The Indian Year Book*. But who assumes responsibility for giving effect to the most fundamental laws of equity and humanity in India? We are not familiar with the claims put forward by India to a position amongst the eight industrial powers of the world sharing full responsibility for enforcing the decisions of international labor conferences, but the mere fact that any self-respecting representative of labor voted in favor of admitting India to such a high place in their deliberations, is sufficient evidence that America is well justified in remaining outside the League. If a league of free nations can be stretched to include India, why not welcome the Soviet with open arms into the same association?

We come back to the question as to why the Government of India showed such precipitate haste in ratifying the Washington Convention when it is powerless to enforce its provisions in the jute mills, in the mines or in the Native States which form one-third of India's territory and contains over 70 millions of its population. Cotton and other mills are rapidly increasing within the confines of these independent satrapries, where they are exempt from the law of the League or its subsidiary bodies. A congery of Arabian Nights Caliphates and comic opera Hindu principalities, whose jeweled, beribboned and over-decorated autocrats hold absolute sway over a combined population equal to that of England and France, are safe from outside molestation or coercion. The Ruling Power upon whom devolves this solemn duty dares not exercise its authority for fear of precipitating an outbreak that would terminate its rule over the rest of India.

The glaring inconsistency attached to the action of the Government of India in hastily ratifying the covention, raises the question as to whether humanitarian considerations or dictation from Lancashire was the impelling force. The history of factory legislation in India from 1863 to date, furnishes conclusive evidence that Lancashire has exerted pressure upon the Secretary of State for India at every opportunity to apply British factory laws to India, in order to handicap the growing native industry. India's gesture, far from being traceable to a much lauded concern for the well-being of its workers, would seem to be only another advertisement of the government's subserviency to Lancashire, a determination to apply and enforce European labor standards in a country whose higher classes stand unalterably opposed to any such interference with their privileged position.

There is a very simple remedy for this indifference to the welfare of the Indian laborer. The lower classes have rights equal to those enjoyed by the nizams, amirs, nawabs, begums, rajas, maharajas, pundits, and others of the exalted and decorated classes who mingle so freely with British officialdom. If the Bombay millowners are incapable of responding to the cry of suffering humanity by establishing a central bureau which will free their workers from those who prey upon their necessities, then it is clearly the duty of the Government to intervene and institute the necessary reforms. The Hawaiian Sugar Planters' Association solved a much more difficult problem. The supplying of labor for all the plantations is entrusted to a special department of this organization which has done away altogether with many of the old evils connected with indiscriminate recruiting and employment. There is no reason why the Bombay Mill Owners' Association should not combine to create a similar machine that would eliminate the present disgraceful practices. If such co-operation within themselves cannot be brought about, or if the difficulties are too great for a private organization to overcome, the government is morally obligated to step in and terminate these abuses through the creation of a Central Employment Agency under the direction of the Labor Bureau for furnishing the daily labor requirements of all the mills of the Bombay district. Such a system would put an immediate stop to the graft surrounding the employment of labor and if the agency be supplied with a small working capital from government funds, it might also devise some scheme that would free the workers from the clutches of the money-lender. Such an agency might also be entrusted with carrying out a definite program of welfare work that the millowners now refuse to apply or pay for. It might also co-operate with the municipal housing committee. The Bombay Mill Owners have asked the Government for everything in the house including the kitchen stove, but they offer no assurance that the workers will benefit from the remission of taxation. Under these conditions, the Government of India is fully justified in levying a special welfare-tax upon the industry to cover the expenses of the Central Labor Board, in enforcing these regulations. Until some such step is taken to protect the rights of the workers, laudatory remarks about the Government's humanitarian policy in enforcing a ten-hour working day, are strangely out of place.

Bull Dog Pluck

"If the most efficient Lancashire mills could be gathered into a unit managed on American lines, with nobody caring a tinker's damn who anybody else's father was or what his social position is, they would set a pace that no industry in the world could surpass. The plant is all there. Technical knowledge is to be had in abundance; reputation of goods is such that scarcely any industry compares in that particular, and the selling organization is adequate. All that is lacking is imagination. . . . There is a stick-to-it-iveness in the British character which proves its worth in such situations as that which has confronted cotton during the past four years. Most people who have the ability and the guts to stick through thick and thin usually win out and it is this that is pulling Lancashire through" *From Britain's Economic Plight," By Frank Plachy, Jr.*

Bombay's Textile Industry Does Not Develop Home Market

Seeks Profitable Export Trade in Cotton Yarn

THE cotton mill industry of Bombay dates from 1857, when the first mill commenced working. The enormous imports of piece-goods and yarns from Lancashire set the merchant community wondering whether it would not be feasible to fight Manchester with her own weapons and themselves supply the demands of the island and the surrounding districts. By 1860, six more mills were established with an outlay of a quarter of a million pounds sterling, and Bombay started on her career to free India from the monopoly of Manchester, but after seventy years with 84 mills now in operation, the industry is almost as far from attaining its objective as the day it was started. By 1880, the number of mills had reached 58 and with the introduction of improved machinery and importation of cheap German dyes, the industry developed a thoroughly healthy state by enjoying a practical monopoly of the China and Japan yarn markets and successfully competing with Lancashire in coarse piece-goods for the home market. In 1898-99 the percentage of Indian cloth production to imports was 17, rising to 81 in 1917-18, since when it has risen to more than one hundred. India is now able to produce over half her own power loom requirements, but its market is still dominated by Lancashire despite all efforts to improve and increase its output.

In other words, the economic law that an industry to be successful should base its support and reason for existence upon the requirements of its home market, has failed to operate in the development of the Indian cotton mill industry. At no time in the history of its mill industry has Bombay made any serious effort to comply with this basic principle; on the contrary, its main object has been to build up a profitable export trade to the extent that the spinning of yarn was developed out of all proportion to weaving in order to capture and hold the vast and profitable Chinese market then dominated by the Parsee opium ring. Whatever prosperity the Bombay mill industry has enjoyed during the seventy years of its existence is traceable largely to outside influences which gave to it unexcelled opportunities to expand its export field; the record showing that it received its first impetus during the American civil war when the main source of cotton supplies was closed to Lancashire.

Bombay on the Textile Map

America's sacrifice to free her slaves, put Bombay firmly on the map. In five years, roughly £81,000,000, over and above what she had in former years considered a fair price for her cotton, was brought to the city by the war boom. So vast were the profits that the whole community from the highest English official to the lowest native broker, became utterly demoralized and devoted themselves to gambling on the Stock Exchange. Bombay had so much money that she did'nt know what to do with it and sunk the bulk of it in speculative land enterprises which all went still further to swell the immense fortunes of the Parsee land-owners. In the disastrous crash that followed, the cotton mill industry received a set-back from which she did not recover for six years, and then it was only the China market which pulled it through and enabled it to expand. For twenty years, say from 1875 to 1895, or during a period when there was no competition to speak of, the Bombay mill industry developed along profitable lines. Aside from this, every period of prosperity it has enjoyed coincides with world disasters, automatically followed by periods of depression when it had to meet organized competition. At no time in its history has Bombay been able to stand up before legitimate competition, yet instead of seeking for the causes from within, it has always sought to lay the blame upon outside influences.

Between 1870 and 1875, seventeen new mills were started, increasing the number of spindles and looms to 750,000 and 8,000 respectively. These figures show that during the first twenty years of the industry no attempt was made to carry out a program which would have solidified its position in the home textile field, all activities being concentrated upon expanding the more profitable yarn trade with China and Japan. For the next twenty years, Bombay had its own way in the China market, increasing the number of its mills to 69, its spindles to 2,123,892 and its looms to 20,217. During the closing decade of the last century, the industry was severely penalized when the Indian mints were closed in 1893 to the free coinage of silver and in 1897 when a 3½ per cent. excise duty was imposed on cloth manufactured in India, both blows falling at a time when the Japanese mill industry was getting its initial start. These circumstances combined to deal a blow to Bombay from which it only temporarily recovered in 1904, or at the time of the Russo-Japanese war. For three years, Bombay again enjoyed a period of prosperity, but when Japan regained her competitive position in 1907 and actively entered the Chinese market, Bombay experienced a depression which brought with it many large failures and the closing down of many of its mills. These adverse conditions arising from competition with a more scientifically organized industry continued with brief periods of partial recovery for ten years, or until 1917, when the war boom set in and carried Bombay once more to unprecedented heights of prosperity. Millions in profits again rolled into the city, mill capital was watered and increased enormously, but still the industry paid huge dividends until the inevitable slump came in 1922, when once more compelled to face better organized and more efficient competitors, the over-capitalized and unscientifically managed Bombay industry went down to defeat. In the effort to regain something of its lost position, Bombay has made the welkin ring with denunciations of revenue measures which in various forms take a heavy toll in taxation, and after some of these were abolished, it now turns on Japan and brazenly charges that country with being responsible for its failure to operate on a profitable basis.

Japan's Share of Indian Cotton

Out of a crop of 6,000,000 bales (400 lbs. each) of cotton grown in India in 1924, 2,629,000 bales were consumed at home and 3,297,000 bales exported. It is difficult to check the Indian and Japanese statistics, so for convenience we take the following figures as given in the 1926 *Indian Year Book*. The total export of Indian cotton for 1924-25 was 3,326,000 bales, of which, Japan purchased 1,671,000 bales, or fifty per cent., valued at 458,000,000 Rupees. China purchased 9 per cent. and as Japanese capital owns and controls approximately 50 per cent. of China's spindles, the purchases of Indian cotton by Japan is over 54 per cent. of the volume of exports, or 27 per cent. of the crop. The crop is valued at 910,000,000 Rupees so Japan is now paying the Indian farmer about 500,000,000 Rupees for his chief staple.

In the early days of the Indian textile industry, or before the "unequal treaties" were denounced, Japan was one of India's best customers, taking in 1888-89 more than 23 million pounds of yarn. As soon as Japan recovered her tariff autonomy and protected herself against outside exploitation, the conditions were soon reversed. In 1900, or within a few years after starting her own industry, Japan exported to India 22,076 yards of piece goods and 128,140 lbs. of yarn. In 1924-25 the Indian mills produced 719 million pounds of yarn and imported 56 million pounds, roughly, eight per cent. of her requirements. Of these yarn imports, Japan supplied over 32 million pounds (57 per cent.), or 4½ per cent. of India's total consumption. In the same year Japan supplied 110,000,000 yards of piece goods, equivalent to 8½ per cent. of the total imports, valued at 400 million rupees. Of this amount, 96,000,000 yards were grey, unbleached sheeting. According to the official trade returns, Japan in 1925 exported cotton yarn to India to the value of Yen 36,000,000; piece goods

to the value of Yen 47,000,000 and cotton hosiery valued at Yen 5,750,000, a total of Yen 88,000,000. Roughly stated, Japan purchases Indian raw cotton to the value of 500,000,000 Rupees, transports it to Japan converts it into yarn, cloth and hosiery and ships these finished products back to India to a value of approxi mately 88,000,000 Rupees ; a most profitable transaction for India.

Bombay Lost China Market

How Bombay lost the China market may be seen from the following figures. In 1898-99, out of a total exportation of 219 million pounds, 208 million pounds of yarn went to that country. In 1901-2 this rose to 260 million pounds. Since that date, the decline has been steady and rapid so that by 1924, China (including Hongkong) took only 20 million pounds of Bombay yarn. During the same period, Japan, who supplied China with 118 million pounds of yarn in 1903 also saw her trade decline to 63 million pounds by 1924. When Bombay throws a fit, she always blames Japan for the loss of the Chinese trade when, as a matter of fact, the loss of this market to both competitors is due solely to the tremendous growth of the Chinese mill industry. There is no real competition between India and Japan to supply the China market, as Japan exports yarns of 16 counts and above, while India sends 14s. and under. With her own raw cotton supply and plentiful cheap labor, China is gradually supplying her own requirements and ousting Japanese yarns in all counts below 20s. and also in the coarser grades of cloth. China has even commenced to export yarn and cloth to India, so Japan cannot be blamed for the decline of India's trade with that country, except, perhaps, in so far as Japanese capital has contributed to the expansion of the Chinese industry.

Shall a Treaty be Broken

In making out his case for the denouncement of the Indo-Japanese convention and imposition of a discriminatory import duty against Japanese goods, Mr. V. A. Grantham, chairman of the Associated Chambers of Commerce of India declared in one breath that the Japanese were competing very seriously in the domestic cloth and yarn trade not only with Bombay but with Lancashire, and in the next, took it back by saying : " I am not suggesting that the Japanese have yet taken away from the Indian mills any serious portion of their business, for the only part of the local (Bombay) business that has suffered a real set-back hitherto is that of T-cloths and sheetings." Now, it is well known that Japanese competition with Bombay in these lines is not in India's home market, but chiefly in Africa and the Levant. Prior to the War, India enjoyed 63 per cent. of the East African trade against 8 per cent. in favor of Japan. Carried away by the Swadeshi movement, Bombay went to sleep at the export switch, and while its mills were gleefully piling up profits in India during the brief nationalistic campaign, they practically abandoned the African and Levantine markets. When the Swadeshi craze burnt itself out, and Bombay sought to resume its old business with Africa, it found Japan firmly established in the market. Last year, India's share had decreased to 24 while Japan's had risen to 66 per cent.

The latest (1925) trade report of Kenya and Uganda shows that out of a total importation of cotton piece goods valued at £1,227,000, Japan's share was 18 per cent., a falling off of six per cent. from the figures of 1923. The exportations of Japanese piece goods to all East African ports, however, is about 30,000 bales, valued at £20 per bale, sold and shipped largely through the Bombay branches of Japanese firms. Japan's piece-goods trade with Egypt, the Near East and Black Sea ports, is about 65,000 bales and with the Red Sea ports about 50,000 bales, a total of 150,-000 bales roughly valued at £3,000,000. To encourage the expansion of this trade, the Osaka Shosen Kaisha has established a direct steamship service between Japan and Mombasa, cutting down the transit time from 50 to 32 days, and the Yokohama Specie Bank is preparing to open a branch at this port. In July, the bank opened a branch in Alexandria to finance Japan's purchases of Egyptian cotton and to provide facilities for extending her Near Eastern trade. The Nippon Yusen Kaisha will inaugurate in the near future a feeder service connecting its main European line at Port Said with the ports of the Levant and Black Sea. Japan is therefore in the Near East to stay and given equal opportunity, there is every reason to believe that she will more than hold her own in the face of Bombay's competition. If necessary, the Japanese seem determined to invade the Indian manufacturing field, if for no other object than to prove that the cotton mill industry in Bombay can be operated on a profitable basis by the application of scientific methods of management and manufacture. A modest start has been made in this direction by the Mitsui subsidiary, the Toyo Menkwa Kaisha, which recently acquired a 30,000 spindle Bombay mill, which is now being overhauled preparatory to starting work under the new ownership.

Perhaps the most lucid exposition of the nature and extent of Japanese competition with the Indian mills in their home market, is found in the following statement drawn up by Mr. B. J. Padshah, of Messrs. Tata Sons, Ltd., of Bombay.

" The net imports of foreign yarn in 1924-25 were 55 million pounds against a Indian production of 719 million pounds, of which, 36 million were exported, giving a net yarn consumption of 738 million pounds. This yarn was converted into 3,374 million yards of cloth, of which, 1,970 million was produced by power-looms and 1,400 million yards on hand-looms. The import of cloth was 1,770 million yards or sixty per cent. of what it was fifteen years ago and 52 per cent. of the home production. There was an export of 180 million yards. Therefore, India's consumption stood at 4,964 million yards or 25 per cent. larger than it was fifteen years ago.

Of the 719 million pounds of yarn produced by mills, only 25 million, or 3½ per cent., were above 30s ; of the 55 million pounds imported, 47 million, or 85 per cent., were above 30s and 8 million were below 30s. Thus, imported yarn below 30s was just one per cent. of the Indian consumption. There were therefore (47 plus 25) 72 million pounds of yarn above 30s converted into 329 million yards of cloth. Indian manufactured cloth from coarser counts was thus a trifle over 3,000 million yards. The whole foreign imports of cloth under 30s is apparently much less than 180 million yards (or 50 per cent. of India's production) which is balanced by the exports of Indian cloth to the extent of 180 million yards. The Indian production of finer cloth is ten per cent. of the whole Indian output, and competes against 1,600 million yards of finer cloth imported, or five times the Indian output of fine grades. Twenty-five years ago, the Indian mills scorned fine cotton, fine yarn and fine cloth, because the coarser articles paid greater profits. He then asks the question : " Are foreigners butting into the Indian's market or are Indians butting into the foreigner's markets ? The reduction of foreign imports from 2,800 million yards fifteen years ago to only 1,770 million now would seem to point to the latter."

" Indian comsumption of cloth then has grown twenty-five per cent. and Indian mill production has nearly doubled in these fifteen years, while foreign imports of cloth as a whole diminished by 40 per cent. The whole Japanese import of cloth into India is 155 million yards, or under five per cent. of the Indian output, and chiefly confined to one special grade of goods in which India does not particularly compete, and where the Indian output exceeds the total of Japanese imports. Enormous advantages are credited to Japan in her competition in the Indian markets, but are the advantages as real as they look ? Is Japan doing a disservice to our country offering finer and cheaper yarn for Indian looms to work up ? Are foreigners doing this service to the country to be penalized for the protection of Indian incompetence ? "

The above straightforward statement from a representative of the largest Parsee firm in India bears out the assertion that the anti-Japanese campaign is not endorsed by everybody connected with the mill industry, while the following extracts from a protest presented by a Labor Deputation to the Governor of Bombay against the millowners exaggerations about Japanese competition, clearly indicates that the workers are opposed to any further concessions to an industry which takes no interest in their welfare.

" Japanese competition, it is stated, has very considerably affected the Indian cotton industry. We recognize that the Japanese imports in yarn and piece-goods have increased in recent years. But we decline to believe that the Japanese competition has become so dangerous as to threaten the very existence of our cotton industry. The competition of Japan in yarn trade which is so much made of by the Bombay mill-owners, is not really so serious in that the total imports of twist and yarn of 30 counts and below in 1923-24 amounted to 8,323,000 pounds, while the home production of the same counts in the same year was 585,187,000 pounds. Thus the Japanese imports bear a proportion of only 1½ per cent. to the home production."

"The imports of Japanese yarn above 30 counts may not be taken into consideration, in as much as in that respect the competition is between Japan and Lancashire and not between Japan and India. As regards piece-goods, the Japanese imports are only 8.2 per cent. of the total imports and only five per cent. of the Home production. It may be stated here parenthetically that the Japanese imports are increasing in one class of goods in which India does not particularly compete .Moreover, the Japanese imports form only 4.2 per cent. of the balance of piece-goods in 1923-24 available for home consumption, after deducting the total exports from the production and imports. Under these circumstances, it is most difficult to believe that such a small percentage of Japanese imports of yarn and cloth should affect the prices of Indian manufacture to such an extent that there should be no demand for Indian goods even after the Japanese 4.2 per cent. of imports are disposed of. We confess we cannot comprehend such a position, much less sympathise with it."

Britain in India

An American Suggestion for the Cancellation of War Debts

By George Bronson Rea

THE British have indulged in some very frank opinions about America's attitude towards the war debt. Many of them were obnoxious and uncalled for and instead of having the desired effect upon American opinion have tended to stiffen it in favor of complete repayment. Whether Americans are "Shylocks," or a nation of philanthrophists, depends entirely upon how they are approached.

From the American viewpoint there was no sentiment in the causes which provoked the Great War. It was not our fight. It never was from the beginning. Prodded by the Allies and goaded by Germany we had to get into it finally in order to defend our interests and national honor. Sentiment came afterwards, manufactured by the same type of official propaganda so effectively employed to fire the hearts of millions of Britons who hated the war and all that it stood for. In other words, it required just about as much propaganda to convince the British that it was their duty to fight as it subsequently took to overcome America's disinclination to depart from her traditions. If Americans were "too proud to fight," we had no monopoly in our pride.

That, however, is all past and gone. Our old associates now appeal in various ways for a reduction in the amounts of the debt they owe to us and there are many Americans who are willing to wipe the slate clean.

A possible solution to the debt problem might be found in India, if the British knew how to arouse and play up to American sentiment. America's ideal is Democracy, that same democracy that Great Britain stoutly declares lies at the bottom of its own institutions and national life. Under the slogan of "Democracy," America entered and fought the war to free the world from autocracy and militarism. Democracy is the product of enlightenment and education, based on the fundamental law that all men are created equal. Our fathers fought the Civil War to establish this principle at home, and the present generation of Americans entered the Great War to implant the same ideals throughout the world.

Great Britain owes America a large sum of money on which she has promised to pay £38,000,000 annually over a period of sixty years. The burden is a heavy one and Britain to her credit makes no official complaint. The debt settlement has been signed. It is a closed incident, but nevertheless every once in a while the British have just got to tell us in plain language what they think of us for insisting upon collecting the bill when they were willing to forego all war debts owing to themselves. The day will probably arrive when America on her own initiative will propose some modification of the current debt settlements, but that day cannot be hastened by unjust recriminations.

There is one way, however, that Great Britain might possibly be relieved of her debt to America. Great Britain has a sacred duty to perform in India. Sixty millions of her subjects in that country are denied the most elementary rights of human beings through the operation of religious intolerance, a condition which has existed through the centuries and one she is admittedly powerless to break down except by the slow process of education. The poverty of India added to the enormous strain on the finances of Great Britain preclude either the Indian or the British governments from appropriating the funds to tackle this problem in a big way. The task is beyond the financial resources of Great Britain or India for many years to come. Under present conditions these sixty million human outcasts are therefore doomed to an indefinite prolongation of their misery.

Now suppose the British Government should propose to Washington that if the debt be remitted in whole or in part it will promise to expend it on the education and uplift of these sixty million unfortunates and at the same time evidence a willingness to cut down its military expenses in India in order to augment the fund. Place the situation fairly and fully before the American people. Give them to understand that to the annual £38,000,000 of remitted war-debt, the Indian Government will cut its military expenses in half and contribute say another £30,000,000 from this source, which, added to the present appropriation of £7,000,000 would give a total of £75,000,000 a year for educating the masses of India and restoring to the depressed classes their rightful place in the community. If such a proposition, either in whole or in part, is ever placed before the American people and supported by proper publicity, every minister of the gospel of every creed and denomination, every educator, every philanthropist and every right-minded American would get behind it until the support of the entire nation would compel Washington to accept it.

That is one way to put American altruism to the test. We cannot be expected to cancel debts when we feel certain that every cent remitted will be diverted to increasing existing armaments and provoke another conflict, which, if we are not compelled to participate in, we shall have to finance, and when it is all over, we will once more be expected to cancel the obligation and hold the bag. America asked for and received nothing in the distribution of the spoils at Versailles. We hear no intimation from any of our old associates that they are willing to forego any of their territorial acquisitions, or even consent to transfer them in order that countries facing severe population problems may find an outlet and thus avoid another war. All the ideals Americans fought for in the Great War have been shattered since the Peace. If we are to forego the legitimate debt owed to us by Great Britain, let us at least have the satisfaction of knowing that our sacrifices have not been in vain ; that if we have not materially contributed towards bettering the condition and wellfare of the peoples of Europe, we have at least started sixty million Hindu slaves on the road towards ultimate freedom and enlightenment.

The British are fooling themselves if they believe that the United States will enter the League of Nations and lend its armed support to preserve the present territorial *status quo*. America will never enter into an association that gives an equal voice and vote in its deliberations to a nation whose articulate and representative ruling castes deprive nearly one quarter of its population of their elementary rights as human beings.

Officially, no government has the right to express an opinion as to how another government should conduct its own affairs. The press of the world is the only means by which the peoples are able to talk to each other. The British newspapers have been very frank in conveying their thoughts to Americans over the war debt. Here, then, is an American thought they can ponder over in exchange. If they want to start something worth while ; something that will strengthen the bonds of friendship between the two countries and unite them in an alliance, far-reaching in its character, let them propose something along the above lines.

America's interest in the Philippines, in China and other parts of Asia is expressed largely in terms of philanthrophy. We may be making a grave political mistake, but no argument will ever

shake our belief in that we are not doing right. We look forward to the day when the Philippines will become, not only the centre of American trade in the Orient, but the outpost of Christianity in the Pacific, the force which will exert its civilizing influence upon the other countries of Asia. What hope is there that America may ultimately achieve even partial success in this grand mission, when opposed to her humanitarian policy stands the program of Great Britain in India perpetuating conditions which mock and defy her ideals. How can the peoples of the two nations ever hope for true co-operation in Asia when the basic British policy in India constitutes a denial of those sacred principles upon which our common civilization is founded ? If we are ever to come together in a real partnership, a union of ideals and purposes is imperative to full understanding and success. America will never wholeheartedly join with any nation, no matter now intimate their common interests, while her partner condones a double-standard of political morality which defeats the very aims of such an alliance in the one part of the world where it is essential that the tenets of our civilization be firmly implanted.

If we interpret aright the character and temper of the American people, a solution of the British war debt in the interests of humanity, will do more towards bringing the two nations into a lasting alliance than all the Leagues and other instruments proposed towards this end.

A Greasy Deal

The Egyptian Government Kills China's and Japan's Tobacco Trade and Hands it to Greece on a Silver Platter

By George Bronson Rea

ALEXANDRIA, July 26 : "Spoiling the Egyptians," we are told, was a favorite pastime of the ancient conquerors. Maybe so, but we have a suspicion that these prehistoric bucks from the north preferred a winter campaign in the Land of Sunshine in order to play the role of Rudolf Valentino under the date palms to the Cleopatras of the Nile. Human nature dos'nt change very much despite the lapse of centuries and it is difficult to believe that anybody at any time ever succeeded in actually separating an Egyptian from his coin. There is a commonplace Levantine proverb which says ; "it takes three Jews to outwit a Greek and three Greeks to put anything over an Armenian." After shaking hands with the corkscrew individual equal to twenty-seven Jews in shrewdness, it is always wise to count your fingers. This probably explains the origin of the old Roman salute. They also say in the Levant that the Copt is a better man than the Armenian. How many Armenians it takes to properly do a Copt is a problem in arithmetic. When we pit him against the canny Scot or the Down East Yank, one Copt is about equal to a whole chamber of commerce in volubility and business tricks. This Coptic marvel inhabits Egypt, disguised as an original Christian ; the business man of the Land of the Pharoahs. The old saying about spoiling the Egyptians is true to-day only in the sense that he has to be defunct before they can work the game on him. So grave robbing and mummy-snatching is the popular and lucrative foreign industry. The pastime ends right there. I would like to see anybody not born in the country rob a live Egyptian. The British, in their good-natured way of dealing with so-called backward nations reversed the ancient significance of the old sport and to-day the modern Egyptian is properly spoiled in the literal acceptance of the word. From the bespoiled they have become the spoilers, and with the annual dumping of steamer loads of American tourists into the streets of Cairo, a new era of resplendent prosperity has opened for Egypt. Any American who doubts the truth of this statement has only to come into contact with the wily dragoman and the obsequious shopkeeper of Cairo or conduct the most simple business transaction in modern Egypt. The experience will be costly. Unless the foreigner descends to their level and haggles, bargains, cheats, lies, browbeats, waves his arms, yells and swears by the beard of the Prophet, he is bound to be stung—good and plenty. If he goes further and has the temerity to open an office for import and export in Egypt, he will have the whole pack of Levantine foxes out to fleece him. Unless he demands cash settlements or an irrevocable bank guarantee that can be converted into immediate coin, the chances are that he will wake up some fine morning minus his undershirt. This is merely the background to a picture.

Egypt is now a sovereign nation, with a king, parliament, prime minister, diplomatic service, army and all the other trimmings deemed necessary to give an outward suggestion of complete independence to a people who will never be permitted to break away from their fixed place in the British Empire. Egypt may be for the Egyptians, but the inconspicuous presence of British garrisons and British military police in the large cities very definitely fixes its real international status. Egyptian diplomacy therefore has its limits. It is safe to state that every move of importance made by the Egyptian government in the conduct of its foreign affairs is closely scrutinized by the representatives of the British government. Egyptian guile and Coptic acquisitiveness operating behind the shield of British protection would seem to be a tough proposition to go up against. "For ways that are dark and tricks that are vain" the Son of Han has nothing on the descendent of Tut. So we come to our story.

Egypt vs. Asia

The new Egyptian Government made its debut in Far Eastern diplomacy by handing a knock out wallop to China, and hitting Japan below the belt when neither were looking. As a result of the Great War which cut off the supply of Turkish tobacco, the Egyptian cigarette manufacturer turned to the Far East in search for the raw material that would enable him to continue in business. He found in China and Japan a leaf of exceptional fineness and low nicotine content which admirably blended with stronger varieties without affecting the distinctive flavor or aroma of the latter. It was a great find and permitted the Egyptian to carry on and hold his trade. The business grew apace until the imports of leaf from China and Japan rose last year to forty percent of the total from all countries.

It comes somewhat as a surprise to the discriminating smoker who has entertained the delusion that Egyptian cigarettes were superior to all other brands, to learn that not one pound of tobacco is grown in Egypt, where its cultivation has been prohibited under heavy penalties since 1890. The customs returns would lead one to believe that the famous Egyptian cigarette is a very high testimonial and advertisement for Chinese grown tobacco, inasmuch as we find that about thirty percent of the leaf importations into Egypt are from China and ten percent from Japan, the importations from China exceeding those from any other country. The figures for 1925, are :

China	...£E 339,340
Greece	... 285,657
Japan	... 154,515
Russia	... 135,286
Turkey	... 273,479
Total from all Countries	£E 1,271,325

What is more interesting is the fact that this Chinese grown tobacco comes almost exclusively from the Canton district and that no Chinese firm participates in its export. Like the soya bean trade of Manchuria, its creation and development is due entirely to Japanese initiative. The Itoh Yoko, whose main office in China is located at Shanghai, with a branch at Canton, saw the opening created by the war and with characteristic Japanese enterprise went after the business and built it up until it threatened to drive the Turkish leaf from the Egyptian market. The Japanese Tobacco Monopoly also found an outlet for some of its surplus lower grades of leaf, selling it at practical cost. This trade was

conducted through the Japan Cotton Trading Company, Ltd., acting as agents for the government monopoly.

The market price for this Chinese and Japanese leaf averaged about 15 Piasters (75 gold cents) per kilogram. The duty exacted by the Egyptian tariff up to March of this year has been 80 Piasters per kilogram on leaf imported from countries enjoying commercial treaties with Egypt and 82 Piasters per kilogram on imports from non-treaty countries. As neither China or Japan have signed treaties with Egypt, their tobacco was subjected to the higher rate of duty, an excess which works out at about ten gold cents a kilogram. This handicap was however offset by the somewhat astonishing assertion that the Chinese leaf was more honestly prepared than the Near Eastern product. The reason why Chinese tobacco has won such high distinction is traceable to the fact that if the leaf is watered to increase its bulk and weight, on arrival at Alexandria after six weeks in the steamer's hold the consignment would have sweated to such an extent that it would have to be condemned. It is a typical case where honesty is obviously the best policy. Not so, however, with the Greek tobacco, which can be delivered in a few days, or before deterioration sets in. The Greek merchant has the advantage. He makes the most of it by adding as much moisture to his leaf as the traffic will bear. Far Eastern tobacco, however, had another element in its favor. Its dryness and fineness worked out in practice that a kilogram of leaf would make 1,200 cigarettes, while the same quantity of the heavier Greek tobacco sufficed for only one thousand. This more than offset the heavier duty and enabled the Japanese traders to expand their sales in the face of a discriminatory schedule. At the rate the use of Far Eastern tobacco was increasing it would not be long before it made up over half the contents of the world-famous Egyptian cigarettes. Some of the best known Egyptian brands sold under their original trade names are now controlled by leading British tobacco interests with British managing directors in charge of the business. Now whether these British interests became alarmed over the possible danger to the established reputation of the popular Egyptian brands by the increasing use of Chinese leaf, or whether the Greek growers felt the pinch of competition to the point where their government stepped in to help them, is a matter shrouded in deep diplomatic secrecy. At any rate, in a very short time the quality of the Far Eastern leaf became the most interesting subject in Egypt.

A Greasy Deal

There were many conferences, chamber of commerce meetings, diplomatic conversations and, if reports be true, a lavish distribution of backsheesh to outstretched Egyptian palms. All manner of arguments were suddenly discovered and advanced to save Egypt from the Asiatic tobacco menace. The Japanese Government, always on the alert where its interests are concerned, saw the danger to its trade and notified Cairo that it was sending a consul general and fully equipped staff to Alexandria with powers to negotiate a commercial treaty. China was too occupied with internal fights to give a thought to its export trade. The new Japanese consul general was scheduled to arrive in Alexandria on March 15, so whatever was to be done had to be slipped over quickly as the interested parties understood perfectly that Japan would never accept a treaty which in any way discriminated against her products. The Egyptian Government was galvanized into quick action. On March 6, while the Japanese treaty commissioner was still on the high seas, King Fouad issued a Royal Decree raising the duty on leaf tobacco from non-treaty countries to 100 Piasters per kilogram, an increase of 18 Piasters, which more than doubled the cost of the raw material. The law went into effect immediately applying to all shipments en route and to all forward contracts. The profitable Chinese and Japanese tobacco trade was killed at one blow. No new importations have arrived since March and the shipments consigned to Egypt are carried in the warehouses, a dead loss to the Japanese traders, unless they can be sold in other markets.

From the Levantine viewpoint it was a glorious diplomatic victory. The Greeks were jubilant and on the very night the new law went into effect their minister gave an elaborate diplomatic dinner to the Egyptian officials. The Greek minister and all the Greek consuls in Egypt received decorations from a grateful and appreciative government at Athens and when the Japanese treaty commissioner arrived in Egypt he was met with the accomplished fact, a shrugging of shoulders and upturned palms. The Coptic marvel and the Greek prodigy team-working under British protection had put one over on the Japanese.

Specious Arguments

The Japanese were given to understand that the reasons for the discrimination, was; (1) because Japanese tobacco yields twenty per cent. more in manufacture than any other variety; (2) that the exports of Egyptian cigarettes have decreased in recent years and the assumption is that it must be due to the increasing use of Chinese and Japanese leaf, and (3) that Japanese tobacco is very harmful to health.

The answers to these objections are seemingly obvious. If unwatered, Greek and other Near Eastern leaf would give a larger yield in manufacture. The statistics do not indicate any serious falling off in exports and if there exists a slight decrease in Europe it is offset by an increased consumption in Asiatic countries.

The total exports of Egyptian cigarettes for 1925 was valued at £382,570, of which India and Eastern Asiatic markets took £159,000; the largest purchasers being the Dutch East Indies and the Straits Settlements. The difference of £888,000 between the value of exports and imports would indicate that about two-thirds of the tobacco imported into the country was consumed therein. It is fair to assume that the Egyptian cigarette manufacturers have preserved the reputation of their popular brands in the export market by employing the best grades of Turkish or Greek leaf and sold the so-called inferior Far Eastern blends at home. As a matter of fact, the exported Egyptian cigarette contains practically no Japanese and very little Chinese leaf, which has all been absorbed by home consumption. The decrease in the exports of Egyptian cigarettes to high grade markets is traceable to the fact that American and British manufacturers buy their supplies of Turkish tobacco direct and make their own blends which meet with the increased approval of their customers. The contention of the Egyptian Government that a discriminatory tariff was necessary on Far Eastern tobacco because its use was damaging the export of Egyptian cigarettes is not supported by the facts. The argument that Japanese or Chinese tobacco is harmful to the health is disproved by the evidence that it contains less nicotine and because of this lack of strength and aroma is peculiarly adapted for blending with any other variety.

It is not difficult to check up the Egyptian figures. The value of all tobacco imported into Egypt during 1925 was £1,271,325, on which customs duties were levied to the amount of £5,858,796; equal to approximately one-sixth of the state revenues. On an average Far Eastern cost level of 20 Piasters per kilogram, this would indicate that the volume of imported leaf was somewhere between 6 and 7 million kilograms, on which an average duty of 80 Piasters was levied in order to derive the customs receipts above mentioned. Now the total volume of exported cigarettes manufactured in Egypt during 1925 (valued at £382,570) was only 197,251 kilograms, on which a drawback of 60 Piasters per kilogram is allowed, the government retaining 20 Piasters benefit, deriving a total revenue of £39,450 on the gross volume of cigarette exports. On the Far Eastern cost level of 20 Piasters per kilogram, plus the 20 Piasters duty retained by the government the raw material would cost the manufacturer about 40 piasters per kilogram, while the exported product was valued at about 200 Piasters per kilogram, a difference of 140 piasters for the cost of manufacture and profits. It is evidently a very profitable industry.

The figures would indicate that the Government stands to profit more in revenues from an increase in home consumption than by encouraging exports which have to compete with the widely advertised brands of the big American and British tobacco trusts in the high grade markets of the world. The suspicion is strengthened that the knockout blow delivered to China and Japan was influenced by motives which have no legitimate bearing on national finances or economics. In effect the Egyptian Government for reasons which will not stand investigation has made a present to Greece of a market for over 3,000,000 kilograms of tobacco at the expense of China and Japan and the pockets of its own people.

Intentional Discrimination

From whatever angle the new tariff is approached, the conclusion is ultimately arrived at that its application without giving the Japanese Government an opportunity to enter into treaty

negotiations was an intentional discrimination, a diplomatic discourtesy that would call for retaliation in the event Egypt was a *bona-fide* sovereign state. Under this handicap, Japan has initiated negotiations, but it may be taken for granted that she will sign no treaty with a government that discriminates in such a flagrant manner against her products.

As in the case of China, the question of extra-territoriality, or "the capitulations," as they are known here, enters largely into treaty relations between Egypt and the principal powers, and although neither Japan or China are included amongst the signatories enjoying consular and mixed court rights, Japan, if so disposed, may well insist upon the most favored nation treatment for her subjects. In order, however, to demonstrate her friendship, Japan has refrained from raising this delicate question in the present negotiations, but instead of accepting this attitude in the right spirit, the Egyptian authorities seem determined to create hard feelings by refusing to modify their discriminatory tariff. Negotiations for the present have therefore reached a deadlock and will not be reopened until October. At the best, the discrimination against Japan can only be of a temporary nature and sooner or later, the Egyptian government will have to climb down if it hopes for recognition from Japan or admission to the League of Nations.

How About China

Japan is quite able to protect her own interests, but how about China, who, after all, is the chief sufferer? Whatever the outcome of Egypt's dispute with Japan, a highly profitable Chinese trade will be wiped out involving a loss of over $3,000,000 to the Cantonese farmers. What is really behind this petty tariff war aimed at China and Japan? Obviously, Egypt gains nothing from the imposition of the discriminatory tariff and her own people who consume the Chinese and Japanese product, will pay a higher price for the privilege of smoking the more expensive Greek tobacco. The Greek industry and perhaps a few favored Egyptian manufacturers will be the sole beneficiaries. In seeking for the reasons behind this unusual gift to Greece at the expense of China and Japan, well informed people in Alexandria profess to see the hand of powerful British tobacco interests supported by their government in retaliation against Canton's prolonged boycott of British goods and injury to British trade. The British remain in the background while the Greek minister receives the praise and decorations for his diplomatic shrewdness. Interesting, if true. In addition to a very natural desire on the part of the British to chastise Canton, the further suggestion is made that the discrimination was intended to be double edged and settle an old score against Japan arising out of the resentment of British interests against the Japanese Tobacco Monopoly for forcing them out of Korea and seriously undermining their trade in Manchuria. Also interesting, but not convincing. The truth is that the Levantines have applied their well-known commercial tactics to oust China and Japan from a market which they created and exploited. There may be some British interests who will profit, but, if as alleged, they had a hand in putting over such a raw deal, it was worked through their Egyptian partners. The British government never lent itself to such tactics. It has troubles enough with Egypt without putting itself in the power of the native politicians by becoming a partner in such a rotten piece of Egyptian legislation.

Japan Justified

The impression I received in Alexandria was that the Anglo-Egyptian tobacco interests were trying to make out a case against Japan of unfair competition because the cultivation of leaf in that country is controlled by a Government Monopoly which fixes the price and enables it to market its surplus abroad at costs ruinous to other countries. The case, however, is not a particularly strong one as the Japanese share in the Egyptian trade is only about ten per cent. of the total and represents the lower grades of leaf. The Japanese sort their leaf into about 18 grades, using the first twelve for home consumption. The surplus in the No. 9 to No. 12 grades have furnished the bulk of the exports to Egypt. The argument of unfair competition arising from the entrance of monopoly grown tobacco in world trade might have carried considerable weight some years ago, but with the existence of similar monopolies in other countries covering many raw materials, specially protected industries, restrictive production schemes and other skillfully drawn up measures to gouge the foreign consumer, it loses its force in this Year of our Lord, 1926. If other governments can do these things without invoking condemnation then the position of the Japanese Tobacco Monopoly is equally unassailable. It is indeed fortunate for Japan that its government has been able to create another outlet for its products and find a new source of work and food for its people. No matter what Japan does to make ends meet and keep her people at home, no other nation, especially Britain or America, has the right to criticise methods which their own policies have forced upon her. We have driven Japan into a corner with her back against the wall fighting against heavy odds to exist through peaceful methods and the standards of commercial ethics which apply in other more favored countries cannot fairly be extended to cover her necessities. What the people of Japan cannot do for themselves, is clearly the duty of their government to do for them and if the Tobacco Monopoly has been able to build up an export trade for its surplus lower grades of leaf tobacco in competition with other countries, those whose diplomacy has deprived her population of outlets are the last who should critcise any legitimate method whereby the people of Japan are enabled to live.

Shall Britain Stand Alone?

By George Bronson Rea

AT the Third International, Zinoviev declared that the Soviet was at war with the British Empire; its main objective being India. Since then, a vicious campaign of propaganda has been vigorously prosecuted to break down the *morale* of the British people, and sap their financial strength in order to facilitate the collapse of the Empire from within. Checked temporarily from reaching India from the northwest the offensive was shifted to the northeast. Russia is once more seeking her traditional goal through the territory of China.

We are back again to 1896. History is being repeated, with Britain facing a more determined, more unscrupulous and more formidable foe than the Russia of the Czars. "The Bear who walked like a man," was a noble antagonist compared to the hydra-headed viper which drove him out and usurped his den. The old Bruin of the North crushed his adversary by brute strength; the Soviet serpent strikes its unsuspecting victim down in the dark.

The task that Japan successfully accomplished at such a great sacrifice in 1904, has been undone by sentimental claptrap, emotional insanity, amateur diplomacy and school-boy statesmanship. Great Britain now faces the menace in Asia alone. If forced to fight she will have many sympathizers but no help. God helps those who help themselves, and the British have tardily recognized the force of this old maxim. There is a limit to British patience and forbearance and unless a sudden halt is called to the Soviet campaign, they will in time be compelled to fight in self protection.

We have felt justified in departing from a settled policy to refrain from editorial criticism of British affairs, by drawing attention to the grave situation created by the cancellation of the Anglo-Japanese alliance at the Washington Conference which removed the one check upon Russian aggressions in Asia and opened the door for the ruthless advancement of her never-changing program of territorial conquest. The rabid, unreasoning anti-Japanese hysteria of recent years, blinded otherwise clear thinking British leaders to the price they would eventually be called upon to pay for departing from their traditional policy in Asia. The upheaval in China, labor troubles at home and the unrest in India have finally convinced the British that they are up against a serious menace. The revelations surrounding Red plotting in England, exposed in the documents submitted to Parliament is now supplemented by the testimony of the highest British military authority on the Soviet activities in Asia.

In the course of a lecture delivered to the European Association of Calcutta, Col. M. Saunders, Director of the Indian Military Intelligence and Acting-Director of Indian Military Operations, explained fully the constitution of the Soviet Government from the village unit to the Politbureau, which he describes as the most powerful dictatorship the world has ever seen. He then outlined its foreign policy as revealed by public speeches, and furnished convincing evidence that the main object of the Soviet was the conquest of India, the Achilles heel of the British Empire. This lecture is so timely and of such vital interest and importance to everybody in the Far East, that we feel justified in reproducing that part of it which so lucidly explains the present situation.

Aside from its political interest there is one statement, which coming from such a high authority and competent observer will not be lost on our readers. In concluding his remarks about Soviet activities in China, Col. Saunders says ; "*That remarkably able man, Sun Yat-sen accepted Soviet aid for his own ends, and now Soviet influence is paramount in China.*" We had to read that statement twice before we could believe our eyes and then check it by referring to reports of the lecture in other Indian newspapers. *The Statesman*, of Calcutta, was apparently the only British newspaper of importance which printed the entire lecture without editing it. Every other newspaper that we looked through had deleted this tribute to the dead Chinese leader. We are glad to see that one highly placed British official has the courage to bear testimony to the ability of a man, who, despite all his faults, was an unselfish, high-minded patriot, the one honest leader who stands out in bold relief against the background of plumed and uniformed bandits posing as Saviors of their country. Let us hope that the statement of Col. Saunders will remove some of the bitterness against the British now held by Canton and the followers of Sun Yat-sen.

Col. Saunder's article follows :

The Red Menace to Asia

An Amazing Expose by Col. M. Saunders, Director, Military Intelligence and Acting Director, Military Operations, India.

The Strongest Weapon is Propaganda.

CONVINCING evidence of the reality of the Bolshevik menace to India was given by Col. M. Saunders, Director, Military Intelligence, India, and Acting Director, Military Operations, India, in the course of a lecture delivered to the European Association at the Saturday Club cf Calcutta.

The term Bolshevik, which is now associated with tragedy and terrorism, is quite an innocent Russian word, explained the lecturer.

"Bolshe" in Russian means "more" or "the majority." The first time the word was used in connexion with the party was at a meeting of Russian Socialists held in London in 1903. These Socialists were discussing the best means of getting rid of the rule of the Tsar and of establishing a Republic. One party, the moderates, voted for expanding democratic ideas and for obtaining their desire through social evolution by peaceful methods. They were in the minority and called "Mensheviks" from the Russian word "menshe" meaning "less." The other party, the extremists, voted for revolution by violent means, such as the murder of their political opponents. These were in the majority at the meeting and were known as Bolsheviks.

In March, 1917, fourteen years after this meeting was held in London, the great revolution in Russia took place, which overthrew the Tsar and turned Russia into a socialist republic. This was a bloodless revolution carried out by social revolutionaries and was not a Bolshevik revolution. The Bolshevik revolution came in November, 1917, destroyed Kerenski's moderate Socialist Government, and placed Russia under the control of extremists who have succeeded by ruthless measures, murder and tyranny in maintaining their position up to the present day. The March revolution was a democratic revolution, said Col. Saunders, and was justified owing to the incompetence and corruption of the Tsarist Government.

The Bolshevik revolution of November, 1917, was a revolt against democracy, and was successful, thanks to the energy and resolution of a small band of fanatics, led by Lenin and Trotski, who showed no mercy in their determination to seize power. In this enterprise they were assisted by the weakness and incompetence of Kerenski's Government and by the support given them by Germany, who was desperately anxious at the time to disintegrate the Russian front. The Bolsheviks were in the minority of less than one per cent. of the population, but by terrorism succeeded in imposing their will on the remaining ninety-nine per cent. Bolshevism thus became a dictatorship, not of the proletariat, but of the criminal classes. Lenin himself, in a frank speech before the 3rd Soviet Conference, remarked "Among 100 so-called Bolsheviks there is one real Bolshevik, with 39 criminals and sixty fools."

This rule by a minority has continued for the past eight years and is in reality more autocratic than any Tsarist rêgime that has ever preceded it.

All convinced Bolsheviks believe in Communism, so the ruling party in Russia to-day is the Communist Party. The Communist Party in Russia to-day numbers 350,000 out of a population of 120 millions, indeed a rule by the minority.

The Bolshevik theory is that a small minority are to be in power and are to hold it until Communism is accepted universally, which, as they admit, may take a long time.

To show how the Communist rêgime in Russia affects the political situation in other parts of the world, it is essential to understand the relationship between the present Russian Government and that world-wide organization known as the Third International.

To arrive at the Third International, it is necessary to know of the First and Second Internationals.

In 1848, Marx and Engels issued their manifesto calling on all socialists in the world to join together and abolish all ties of race, religion and country.

In 1864, the "International Working Men's Association" was formed with its headquarters in London. This was known as the First International. The movement grew slowly until 1870, when it collapsed at the outbreak of the Franco-Prussian War. The organization then divided up into National Labor Parties. National patriotism proved too strong for an internationalist organization to take root.

Third International

The International movement, however, started again some years later and the formation of the Second International took place at Paris in 1889 by a union of all National Labour Parties. Most of our leading labour M.Ps.—Mr. Ramsay MacDonald and his colleagues—joined the Second International before the Great War.

The Great War upset the organization owing to patriotism again being too strong for internationalism, with the result that each nation had its own party for the furtherance of socialist aims. The chief amongst these were the French Socialist Party, the Menshevik Party in Russia, the German Independent Party, and the Independent Labor Party in England, etc.

After the Great War was over, a reunion of the Second International took place, and it now exists as a Socialist organization with its headquarters at Amsterdam. It represents the furtherance of Socialist aims by moderate means as opposed to the violent methods of Bolshevism.

In 1919, the Bolsheviks, in their desire to create world revolution, considered that the aims of the Second International did not suit under plans, so they called on all Socialists to abandon the Second International and join the Third International, a Communist one, which they formed in Moscow in March, 1919. This International has as its object the spread of Communist doctrines all over the world by violent revolutionary methods.

There is thus a great difference between the Second International, who wish to gain their aims by legitimate and constitutional

methods, and the Third International, who use direct action, murder and bloodshed.

System of Government in Russia

The system of Government in Russia is as follows: Every village has a soviet and sends its representative to the District Soviet, which in turn provides members for the Provincial Soviet. Town and Provincial Soviets then provide the 2,000 members of the "Congress or Soviets of the Union of Socialistic Soviet Republics," which meets once a year. This congress appoints a Central Executive Committee of about 300, which functions throughout the year and carries out the executive administration of the country including matters of foreign policy.

The Comintern—or Council of the Third International—which is quite separate from the Congress of Soviets, has the task of spreading Communism and revolutionary doctrines not only in Russia, but throughout the whole world.

Above the Congress of Soviets and the Comintern, however, there is a super-Cabinet called the Politbureau.

This super-Cabinet consists of nine men only—Rikov, Stalin, Trotski, Kalinin, Bukharin, Tomski, Molotov, Voroshilov, and Zinoviev. They are absolute dictators and all are extreme Communists. They represent the most powerful dictatorship the world has ever seen.

It is obvious, therefore that the policy of both the Russian Government and the Third International is controlled by the same individuals, and that the aims of both must be identical.

How does this affect us? Whereas we have no quarrel with the people of Russia and would like to resume good relations with them, we have a very serious quarrel with the Third International, which is fomenting worldwide revolution and regards the destruction of the British Empire as essential. It amounts to this—and it is no use disguising the fact—the Third International has declared war on the British Empire. Their leaders made no attempt to conceal this. Again and again they say so in their speeches.

Their propaganda, now organized throughout the British Empire, is self-evident. Their connection with our labor troubles both in England and in other parts of the Empire has been fully exposed, the most recent example being given by the general strike in England, the result of which has caused them bitter disappointment.

To show how definitely the Third International has declared war on us, continued Col. Saunders, I will quote extracts from two speeches, both by Zinoviev at Moscow. In one he stated :—

> "We are at war with the British Empire. Our first weapon is propaganda and our second, force of arms. The Achilles heel of the British Empire is India. We must therefore make every effort to develop all possible lines of advance leading on India."

On November 6, 1925, he said :—

> "International proletarian revolution is now developing along three channels.
>
> The *first channel* is the East. I think this channel by its importance is now particularly significant. Streams are running along it with headlong force which are undermining the very foundation of the world, and in particular, British Imperialism.
>
> The *second channel* is the revolutionizing of the European Labor movement—in the first place, the British.
>
> The *third channel* is the old one of forming and taking care of the separate nuclei of the world revolution, namely the Communist Parties (in all countries)."

Zinoviev this year said: "What we planned for India has come to pass in China, but we have hopes that India may make up leeway in a sudden and unexpected fashion."

You cannot have plainer speaking than this.

The wholesale destruction of the upper and middle classes in Russia gave the Jewish element the chance of coming to the top, as the peasant class was too illiterate to undertake executive duties. The result of this is that the greater percentage of leading Commissars to-day in Russia are Jews. Most of these Jews changed their names. For instance, Trotski's real name is Bronstein, Zinoviev is Apfelbaum, and there are hosts of others.

Whereas in Europe the policy of the Soviet Government is an international one involving the creation of class warfare, in Asia the policy adopted is a national one. In the East the Soviet poses as the friend of oppressed Eastern peoples against Western Imperialism. They suggest that each Eastern Nation shall form its own National Soviet republic and join the Union of Soviet republics. This is an ingenious idea, and I will describe later how it has developed in Central Asia. The Soviet general policy in Asia is one of territorial expansion, and, except for its method of execution, differs in no way from the old Tsarist policy dating back from the time of Peter the Great. Bearing in mind Zinoviev's statement that "all lines of advance must lead on India," let us now see exactly what is being done in each Asiatic country.

Propaganda in Egypt and Turkey

Though Egypt is not in Asia, continued the lecturer, I will start with Egypt and work eastwards :—

(*a*) *Egypt.* In Egypt Bolshevik agents keep touch with the Egyptian Nationalist Party under Zaghlul Pasha, as this party desires the removal of British influence and British military control from Egypt. Nothing the Soviet would like to see better than the loss of British control over the Suez Canal.

(*b*) *Palestine and Syria.* Nothing worthy of note.

(*c*) *Arabia and Irag.* A Soviet representative was sent not long ago to Jeddah and Mecca for propaganda purposes. His efforts to interest the Arabs in Soviet doctrines have been of no avail. No amount of camouflage can make the tenets of Islam agree with the doctrine of Bolshevism.

Iraq has also been a barren soil for Bolshevik seed up to date.

(*d*) *Turkey.* Every effort has been made in Turkey by the Soviet to promote hostility against Great Britain,who is described as the enemy of Islam. Turkey is urged to unite with Russia and other Moslem nations against the British. The Soviet did its best to push Turkey into war against us over the Mosul question, and the settlement of this question is a distinct disappointment to Moscow. The Turks have every reason to mistrust Russia and it is satisfactory that the insidious propaganda conducted by the Soviet representatives at Angora has borne no fruit. One may now expect that the Soviet Government will now intensify the Communist organization already existing in Turkey with a view to upsetting the Government of Mustapha Kemal.

It must be remembered that Russia, as ever, wants to control the exits from the Black Sea.

Policy in Persia

(*e*) *Persia.* Soviet policy in Persia has the following three objects in view :—

(*a*) to stir up hostility against Great Britain amongst the Persians.

(*b*) to turn Persia into a Socialist republic and absorb the country into the Union of Socialist Soviet Republics.

(*c*) To use Persia as a forward base for propaganda work into India.

The Bolsheviks have a widespread propaganda organization throughout Persia working incessantly with these aims in view. This organization is controlled by the Soviet Embassy at Teheran, and functions through the Soviet Consulates located in all the chief towns in Persia. These consuls are picked for their ability as propagandists and they are all, needless to say, members of the third International, many being Jews, who have travelled in the British Empire. For instance, the first Russian minister in Teheran was Rotstein, who had lived in England for 25 years and was formerly on the staff of the *Manchester Guardian.*

In spite of this large organization, supported by the expenditure of considerable sums of money on propaganda, the Soviet has not succeeded in either promoting hostility to Great Britain amongst the Persians, or in turning the country into a republic. The rise to power of that remarkable man Reza Khan, and his coronation as Shah of Persia two months ago, have frustrated the Bolshevik plans for establishing a republic under Soviet influence.

Though the Anglo-Persian Convention in 1920 and our enforced military occupation of South and East Persia during the war were the cause of Persian hostility to us, this atmosphere has now completely changed. The Persians now realize we are their best friends, and that we are anxious to see Persia develop into a strong and independent Power capable of managing her own affairs.

Forward Bases

Now we come to the third object of Soviet policy in Persia—that of establishing forward bases for propaganda work into India. These now exist at Kerman, Bander Abbas, Bushire and Ahwaz. In other words, they lie on all trade routes leading to India whether by sea or land.

(*f*) *Central Asia.*—Past history of centuries has shown that the best lines of advance into India lie through Afghanistan and the N.-W. Frontier. The main pressure by the Soviet in India in pursuance of their declared policy, therefore, comes from this direction.

The map has greatly changed in Central Asia. The old Mohammedan principalities of Bokhara and Khiva have disappeared. We now have the Soviet Republics of Turkmanistan, Uzbekia, Tajikstan and Kara Kirghiz. These republics follow ethnological divisions, a clever idea, as the Bolsheviks say they have no southern boundaries and should be extended. Thus they aim at absorbing the Persian and Afghan Turkomans into the Republic of Turkmanistan, the Afghan Uzbeks into Uzbekia, and the Afghan Tajiks into Tajikstan. This policy if successful, will bring the boundary of the U. S. S. R. to the line of the Hindu Kush.

Propaganda agents for work amongst these tribes in Afghanistan and N. E. Persia are increasing in numbers and a special school is established in Tashkent for training agents for work in all Oriental countries, including India.

Working into India

In Afghanistan the Soviet are preparing their lines of advance through the country, and they are making every effort to obtain paramount influence in Afghanistan. Their Legation in Kabul is in charge of an able minister named Stark. Large subsidies, mostly in kind in the shape of arms and munitions are being given by the Soviet to the Afghans. Russian engineers have erected the telegraph line from the railhead at Khushk to Herat. The railway reached Termez last November, and Russian engineers are now surveying the line for a metalled road from Termez to Kabul.

The Afghan Air Force, with Russian pilots and mechanics, is being developed. It has its main aerodrome at Kabul, and landing grounds have already been made at Kandahar and Jellalabad besides those on the Termez-Kabul air route. From their present aerodromes, therefore, Russians can bomb our frontier stations; for instance Peshawar, Kohat and Rawalpindi form easy targets.

During the past two years Russian traders, engineers and officials in Afghanistan have rapidly increased in number. These are all either actual or potential propaganda agents. Kabul is now an important propaganda centre for work into India.

The Afghan Government doubtless sees the danger of this Soviet penetration, but naturally it likes to get what it can for nothing from the Russians. The danger is that it may allow Soviet influence to get too strong and to permeate the whole country. Unable then to resist, it might find itself forced into a disastrous war against Great Britain at the dictation of Bolshevik "friends."

A friendly and independent Afghanistan is what we desire to see beyond our frontier. The Soviet penetration now taking place in that country is a serious menace to the peace of India.

Chinese Turkestan

Further East, in Chinese Turkestan we see the same policy at work. A year ago the province was untouched. Now there are Soviet Consuls-General with large staffs at Kashgar and Urumchi, who are trying to undermine Chinese rule with a view to turning Chinese Turkestan into a Soviet republic. If the Soviet is successful, India will have in this mountainous area a contiguous frontier of some 800 miles with the U. S. S. R., which is obviously an undesirable state of affairs.

China is in a state of chaos, of which the Soviet is taking full advantage. Upper Mongolia has been turned into a Soviet Republic, and it is not unlikely that Lower Mongolia will follow suit. A Chinese army under Feng Hu-siang, backed by Bolshevik assistance in the shape of arms, munitions and instructors, is operating west of Peking. It actually occupied the capital for a short while, but was driven out by the anti-Bolshevik forces of Chang Tso-lin, the Manchurian leader. The latter has now combined with Wu Pei-fu, another important Chinese general, and the situation seems more hopeful.

In South China, however, the Bolsheviks have succeeded in establishing a Soviet republic at Canton, which has seriously damaged British trade interests in Chinese waters. The danger to India lies in the fact that this Soviet republic may extend its influence over Yunnan and the provinces bordering Tibet and Burma. This situation needs very careful watching. The Chinaman by nature will never accept Communist doctrines, but we already have seen how a very small organised minority can dominate the whole, especially when a country is in a chaotic state.

That remarkably able man Sun Yat-sen accepted Soviet aid for his own ends, and now Soviet influence is paramount in Canton.

"Red" Army

It is a fact that the Red Army is a more efficient fighting force than the pre-war Russian Army. It is well equipped with mechanical weapons, and great stress is laid on the use of tanks, armoured cars, aeroplanes, gas and chemical warfare. The Red Army has a large and efficient air force. It is worth noting that, whereas other nations are economising on military expenditure, the Soviet this year is increasing its military budget, I understand, by fifty per cent.

Remember, however, that propaganda is the principal weapon of the Soviet, force of arms being the secondary one. This fact has to be kept continually in mind.

Bolshevism is the enemy to-day of all civilised nations, and the British Empire has to bear the brunt of the attack. The main attack, as announced by the Soviet leaders themselves, is being directed on India. We thus know what we are up against, and it is only common sense that we should take the steps necessary for self defence. It is a strategical problem of the first importance affecting the whole British Empire.

You will ask, when is the clash of arms likely to come? This no one can say. There is a limit to what we can put up with. Should the Soviet continue their present policy, I am of opinion that it must result in war within the present generation.

The financial proposition of maintaining an adequate defence is purely a business one. The risk is there. Is it worth our while to insure against it? I say most emphatically yes, but you must form your own conclusions. True there is a League of Nations with a Disarmament Conference now sitting. Soviet Russia, however, is not a member of the League nor does she show any inclination to reduce her fighting forces. The League is not going to fight our battles for us. Heaven helps those who help themselves concluded the lecturer.

Reform in Japanese Banking Proposed

Japan's Banking Originally Patterned After American—Committee Appointed to Recommend Changes—Lack of Coordination in Japan's System—Currency Reform Suggested

By Elgin E. Groseclose

THE appointment of a preliminary committee of investigation, to examine Japan's banking system and to recommend legislation to improve the financial organization of the country, was announced by the Japanese Department of Finance on April 16, 1925. This preliminary committee, consisting of high officials of the Government, representatives of the principal official and semi-official banks, and prominent economists, was placed under the chairmanship of the Vice Minister of Finance. At the same time the Diet was asked to appropriate Y.60,000 to defray the expenses of the survey.

Commenting upon this announcement, the Oriental Economist points out the need of reducing the rate of interest and of stabilizing the circulation of money by correcting the defects of the present banking system. It estimates that interest payments in Japan amount to at least Y.2,000,000,000 a year, and that if these payments can be reduced 20 per cent. through banking reform, Y.400,000,000 more will be released annually for the producing interests of the country.

Japanese Banking Lacks Unity

The banking system of Japan is, nevertheless, a powerful and efficient instrument of that country. Since 1872—from which year modern Japanese banking dates its origin—it has grown with remarkable rapidity and to-day there are a number of institutions with enormous resources and with ramified organizations throughout the world. The Yasuda Bank, the Mitsubishi interests, and the Yokohoma Specie Bank are of this type.

The national banks regulations act of 1872, which forms the basis of the Japanese banking system, was modeled after the American national banking act. It has remained, with few modifications, the basis for the bulk of the banking business of the country, although a variety of other types of institutions has since been created. It is not surprising, therefore, that the principal complaint by Japanese bank reformers is against the lack of coordination between the central institutions and the individual banks.

The history of Japanese banking reveals how the banking resources of the country have been scattered. The Bank of Japan, established in 1882, was originally constituted as the central bank of the country, with the power of rediscount ; but later, after the acquisition of Korea and Formosa, the Bank of Chosen and the Bank of Taiwan became the central institutions for those provinces. The principal modifications of the national banks regulations act were made in 1883, when the privilege of issuing notes was taken from the national banks and granted to the newly created Bank of Japan. Meanwhile, private banks and companies resembling banks increased in number until in 1884 there were 954, and there was still no supervision over them beyond the regulations issud by local authorities. To bring them under more efficient control the ordinary banks regulations and the savings-banks regulations were promulgated in 1890 and put into force three years later.

Numerous Types of Banks in Operation

In 1921 a savings bank law was passed superseding the previous regulations over this class of institution. The principal provisions of the act, beyond those describing the authorized functions of such banks, were to limit their organization to licensed stock corporations with a minimum capitalization of Y.500,000, to restrict holdings of any one security to one-fifth the capitalization of the issuing company, to limit loans to any individual to a maximum of one-tenth the capital and reserve of the bank, and to limit the total amount of loans against real-estate mortgages to the amount of the paid-up capital and reserve of the bank.

In addition to the savings banks and the ordinary banks organized under the general banking laws of the country, several individual institutions have been created by special acts of the Diet. These include, in addition to the three banks of issue : (1) The Yokohama Specie Bank, organized in 1880 chiefly to finance the foreign trade of the country ; (2) the Hypothec Bank of Japan, organized in 1897 to provide long-term funds against real estate ; (3) the Industrial Bank of Japan, created to finance industry and trade both for short and long terms ; (4) the agricultural and industrial banks, created as local financial organs to furnish long-term loans at low rates against real estate ; and (5) the Hokkaido Colonial Bank, established to supply capital for enterprises in connection with the colonization and exploitation of Hokkaido and Karafuto (southern Saghalin).

Rapid Growth of Trust Companies

There are also several classes of financial institutions created by various laws : (1) Mutual-loan societies operating among the middle and lower classes, which received their status by the mutual-loan society law of 1915 ; (2) approximately 200 city credit associations or people's banks, operating under laws of 1900 and 1917 ; (3) a central chest for industrial associations ; and (4) numerous trust companies. The last-named type, which first appeared in Japan in 1906, has grown so rapidly in number and resources, especially since the war, that it has aroused the jealousy and opposition of the regular banking interests. At present there are 33 trust companies with deposits aggregating, according to the *Japan Advertiser*, Y.408,415,000 at the end of March against 327,604,611 four months earlier. Mr. Yoneyama, president of the Trust Society of Japan, recently predicted that deposits before long would soar above the billion-yen mark. The popularity of trust companies has been due to the freedom under which they operate—their status not being clearly defined in Japanese law—and to the higher interest rates which they pay on deposits.

Currency System Inelastic

One change which seems likely to be recommended is a revision of the regulations governing note issue. The circulation is admittedly inelastic, whereas money demands are seasonal, moving up and down in distinct waves and reaching the maximum when the heavy silk movement begins in the late summer and fall. The fiduciary issue of the country is restricted within narrow limits, the Bank of Japan being privileged to issue bank notes against commercial bills to the extent of only Y.120,000,000 ; the Bank of Chosen for Y.50,000,000, and the Bank of Taiwan for Y.20,000,000. These limits may be exceeded upon payment of a percentage tax. The minimum is 5 per cent. ; since April, 1925, the tax has been 6 per cent. For the note issue for the Bank of Japan, at present amounting to Y.1,177,000,000, a margin of Y.120,000,000 fiduciary issue is deemed small. It is now advocated that the country's circulation be concentrated in one bank, and that its issue be made more elastic in order to meet the fluctuating demand for money which characterizes Japanese trade.

Bank of Japan's Control Over Market Small

There has been a growing feeling among Japanese bankers for some years that the company's banking organization is too loosely knit ; that the widespread activities should be more closely coordinated ; and that, particularly, the nation's bank reserves should be centralized in the Bank of Japan. Current deposits of Japanese banks with the Bank of Japan, for example, average around Y. 70,000,000 or Y.80,000,000, or about 1½ per cent. of the total bank deposits of members of the 18 clearing houses—which now average around Y.5,500,000,000—in contrast to the 7, 10, and 13 per cent. ratio demanded of member banks of the Federal Reserve System. Japanese banks let out at call a greater portion of their loanable funds, consequently, as the market is inelastic and as there is no great volume of rediscounts, a sudden demand for funds causes violent fluctuations in money rates.

The Bank of Japan has never played the part in rediscount operations that might have been expected—largely, it is said, because of its casual manipulation of the discount rate. The official rediscount rate of the Bank of Japan has stood at 2 sen per diem (7.3 per cent.) since April 15, 1925 ; and the last previous change was in November, 1919. Meanwhile, the market rate for call money averaged during the past year 5.84 per cent., with rates on commercial paper ranging from 6.21 to 9.15 per cent. ; but during the five years from 1919 to 1925 the market established a much wider range, call money going as low at 1.83 per cent. and as high as 12.05 per cent. As a result, there is no real market for commercial paper in Tokyo or Osaka, and the market for call funds usually sags in the middle of the month and rises toward the end.

Government Influence Important

Although the Bank of Japan exercises only a minor influence upon the market, the extent of the control which the Government itself exercises is considerable. In certain cases the Government practically dictates the rate of dividends which may be declared ; and it has exerted pressure to encourage, if not compel, numerous bank mergers. It wields great influence upon the general policy of credit extensions, and the governmental warnings issued from time to time during the past two years against undue expansion of loans have had a salutary effect.

It is generally admitted that there are too many banks in Japan for the needs of the country. The policy of the Government in encouraging the formation of mergers and the extension of branch banking has been effective. From the end of June, 1923, to the end of December, 1924, the number of banks operating in Japan was reduced from 1,935 to 1,799 ; the number at the end of March, 1926, was only 1,670.

Wanhsien

The Story of a Great Battle on the Yangtze

THE attack on British shipping and British naval men at Wanhsien by a Chinese General marks the climax of a long period of disorders in the Upper Yangtze reaches. For many years, there has been an economic struggle between the steamers and the junks plying the Yangtze Gorges. This struggle was not unlike that which greeted all machinery at the beginning of the industrial revolution. The junkmen saw a more efficient medium of transportation taking from them their livelihood. They were not sufficiently versed in the ways of the world to understand that inevitably they would be driven off the river as hand labor has been everywhere superceded by steam labor. In the Gorges, this problem was further complicated by the fact that the junks were often capsized by the wash of the steamers. As most of the vessels plying the Gorges fly the British flag considerable anti-British feeling was engendered.

During the present war, the general in command of the government forces at Wanhsien was Yang Sen, an underling of Marshal Wu Pei-fu. At this moment he is loyal to the central government and opposed to the Kuomintang, although he may change at any time. He has in the past been regarded as friendly to foreigners, particularly to the British, who have hailed him as one of the efficient governors of province. His turning on the British at this time is as surprising as it is unjustified.

The fighting at Wanhsien was the result of an attempt by the British navy to rescue British merchantmen seized by General Yang Sen. His purpose in effecting the seizure was to force these merchantmen to convey his troops down river to assist Marshal Wu Pei-fu. British ships are forbidden by their government to carry Chinese troops for any of the contending parties and therefore these ships would not enter upon this service. General Yang Sen seized the ship on the pretext that their wash had overturned some junks. Utilizing a converted merchantman, the British navy sailed to the rescue and were caught in a well-set trap.

In the Yangtze Valley, the British have been the pioneers and have borne the brunt of opening the country and building up foreign trade. Their ships were the first to bring steam navigation to the Gorges and they opened an entire field of commerce, even for the Chinese. In the Yangtze Valley, the Chinese have usually been friendly to the British, quite different in their attitude from the Chinese in Kuangtung province and the south. Now comes a period of disturbance and civil war when one knows neither friend nor foe, when everything is in confusion, and when the Chinese people are becoming more and more forgetful of their duties and obligations. Such incidents as Wanhsien may be localized and isolated on the ground that any general is liable to run amuck in a transitional period. But such incidents are occurring too frequently to be altogether ignored. If China is to win a place of equality among the nations of the world, such incidents will have to cease altogether. For no nation can long permit rebel and independent militarists to commit acts of war on friendly Powers with impunity.

The whole of China is now seething with revolt and disorders. The only provinces where there is peace and a semblance are in Manchuria. In the Yangtze Valley, where British interests have predominated, economic and political conditions are so disrupted that it is almost hopeless to expect order for many years to come. In Manchuria, except for the frightful disturbances of the currency, there is still a chance to do some business. The Yangtze Valley is in the heart of China and no foreign power can attack another through this channel. Manchuria is quite different. There China's weakness is not ouly a menace to China ; it is a menace to Japan. It becomes a menace to the world. Foreigners, British, Japanese, Americans want nothing in China but peace and an opportunity to do business. The Yangtze Valley situation is an object lesson of what might happen anywhere. The Chinese people have this to consider, that there is a greater menace to them in these disorders than to the foreigners. This is a time not for recriminations, but for thought.

China seeks equality with all nations. China is entitled to such equality. Such incidents as Wanhsien delay the coming of that equality.

Mr. Rodney Gilbert, in the *North-China Daily News*, publishes a remarkable account of the incident.

"With the arrival of the wounded and some of the ship's officers off the Kaiwo from Ichang we are beginning to assemble the details of the Wanhsien incident and it makes a story that is certainly unique in the annals of the Yangtze. Indeed it is unlikely that a bloodier fight has ever been fought in China waters. The whole scene as the survivors paint it does not belong in this age but in the 18th century, when muzzle to muzzle fighting was the rule.

The Indo-China str. Kaiwo was commandeered by the Mantis in Ichang, fitted with boiler plate, equipped with two pom-poms, fore and aft, and a number of machine and Lewis guns. The Chinese personnel was reduced to the minimum. On September 4 the Kaiwo took on 63 naval ratings and five officers and set out for Wanhsien with as much secrecy as possible. On the way up the steamer was completely disguised with a new coat of paint in bright colours while the red stack was painted black. About six o'clock on the evening of September 5, the Kaiwo came around the bend below Wanhsien, passed the Cockchafer and nosed up against the starboard quarter of the str. Wanhsien. The immediate objective was to rescue the officers who were held as hostages, and it was planned that four boarding parties should enter the four after cargo doors in the starboard quarter, get on deck and stand off the soldiers until the three officers had made their escape to the Kaiwo. Although it was known that there were 400 of Yang Sen's soldiers on board it was hoped that this could be achieved by surprise and swift action without bloodshed.

Deadly Trap Prepared

As it happened the Chinese were fully prepared and had set a very deadly trap. While the Kaiwo was gliding up, about 50 soldiers in all stages of disorderly undress lounged against the rail of the Wanhsien with bowls and chopsticks, eating busily and taking only a languid interest in the approaching Kaiwo. When the two ships touched these fellows disappeared and there was nothing in sight. The first man who stepped across into the cargo door was greeted with a rifle bullet. The second was also shot at and then the bugle sounded and the four boarding parties leaped across and were met with a terrific criss-cross machine gun fire that seemed to come from every part of the steamer. Machine guns had been placed to fire from every possible angle while riflemen by the score were concealed behind heaps of cargo. The fight began at 6.28 p.m. and lasted for just three quarters of an hour with the two boats bound together by the Kaiwo's grappling hooks.

A Ghastly Scene

In the first few minutes the British sailors suffered all the casualties, but swarms of soldiers then appeared on the decks and the machine and Lewis guns came into full play. The Kaiwo edged up until she was fully abeam of the Wanhsien and the after pom-pom got into action against the after deck of the Wanhsien, with the shells set so that they would explode four or five feet from the muzzle. The dead on this deck of the Wanhsien heaped up until they rolled off the pile and fell into the water. On the forward hatch, which is a very big one, they piled up in a perfect pyramid as the soldiers were driven on deck by the boarding parties below and mounted on the heap of corpses to get a shot at the Kaiwo only to add to the heap. The whole port side of the Kaiwo was splashed with blood until she appeared to have been newly painted with red lead and the deck of the Wanhsien was deep in a muck of lood, bbrains and filth.

Officers Besieged

The forward boarding party under a warrant officer got from the lower to the main deck and tried to find the ship's officers who were supposed to be locked in their cabins. It was discovered then that they were on the bridge, where they had fortified themselves against the pirates who had seized the ship. The bridge of the Wanhsien was then brought abeam of the bridge of the Kaiwo and

the Wanhsien's officers were dragged across. All this while Commander Darley was on the bridge with several men who were sniping at soldiers on the Kaiwo while the Chinese pilot fed them ammunition. Having gone so far, and having seen so many of his men killed and wounded, he must have made up his mind to take the Wanhsien while he was about it, for he ran down to the main deck with a revolver in each hand, shouted to his men who rushed to follow him and leaped across. Before he reached the body of the Wanhsien he fired two shots and then dropped, fairly riddled by machine gun fire. The Chinese immediately rushed him, stabbed him everywhere with their bayonets and cut his throat.

Expert Gunnery

When about 300 out of the 400 soldiers on the Wanhsien had been killed, the rest grew frenzied in their desperation and made a rush to board the Kaiwo. They were beaten back with the greatest difficulty and at the expenditure of the last cartridge on the Kaiwo, so the officers hastened to cut adrift and pull away. As the ship fell away, the Chinese soldiers rushed forward on the Wanhsien, got under the forecastle head where they had machine guns placed and opened a galling fire. The forward pom-pom placed a few shells neatly under the forecastle head and blew it off.

The job of getting the officers off the Wantung had still to be done, so the Kaiwo steamed up past the French gunboat, the Doudart, which was a silent witness to the whole show, towards the Wantung three eighths of a mile above, with the idea of boarding her. As she approached, the Chinese soldiers on her tried to murder the officers. The engineer was shot, jumped overboard and was not seen again. The mate swam to safety on the Doudart. The Captain was hanging over the stern, unseen by the soldiers; so, instead of going alongside, the Kaiwo came up and gently rammed the stern of the Wantung while the Captain scrambled aboard. The Kaiwo then dropped down stream out of the line of fire from the shore, and her fight was over.

The Cockchafer's "Sting"

While all this was going on, the Cockchafer down stream and the Widgeon up stream were being vigorously shelled by the shore batteries on both sides of the river and were busy silencing them. When the Kaiwo was going from the Wanhsien to the Wantung a gun on the foreshore, just below the town of Wanhsien, opened on her. The first shot fell about 20 yards ahead of her, but the second carried away her water tank and other gear above decks, so the Cockchafer let the shore gun have a six-inch shell and when the dust and smoke cleared away there were neither gun nor men to be seen, but only a great hole in the beach. The Widgeon devoted herself chiefly to blowing up artillery and soldiers on the waterfront, but the Cockchafer with her bigger guns shelled the town. General Yang Sen had gone 20 miles out of town that afternoon to make sure of his own safety, but the first shot fired landed in his headquarters and completely eliminated it from the picture. Some say 39 shots were fired, others say 56, but not many had dropped into the town before it was burning from end to end and before it was all over the place was a raging inferno.

The Burning City

The Kaiwo saw the last of this hideous picture at 8 p.m. when she dropped five miles down stream to anchor for the night. Even there they could see the red in the sky all night long. No one ate and no one slept that night, and some of the men are shaking yet from the excitement. The following morning with the first light the Kaiwo started down stream under full steam, doing 22 knots all the way to Ichang, not because there was anything to be afraid of, but because no one on board could get away from the scene of a ghastly experience soon enough.

To this story it need only be added that the Chinese engine room staff worked without a flurry throughout the whole fight, showing confidence in the foreign fighting men.

The Chinese assistant engineer worked 20 hours without relief in a temperature of 120° and all next day shook like a leaf and burst into tears every time anyone spoke to him. Luckily there was no loss of life among these men.

The condition of the Wanhsien and Wantung is not yet clear, but probably both are badly damaged. According to one account the Wanhsien had a small fire aboard when the gunboats pulled out, while the stern of the Wantung seemed low in the water. Both were subjected to heavy fire from the small guns of the Cockchafer and Widgeon throughout the fight.

An American Outlet for the Asiatic

THE sad experience of South Africa with Asiatic immigration is to be repeated on a larger scale by British Guiana. For many years past, the only labor that could be induced to remain in this fever infested South American colony has been the Indian coolie. There you will find him living under the same conditions as he is accustomed to in India, preserving his language and customs and building up on American soil an Asiatic community far more prejudicial to American institutions than a similar colony of more intelligent Japanese or Chinese.

The Government of British Guiana has recently negotiated a treaty with the Government of India for the further immigration of Indians into the colony. British Guiana is to pay the cost of recruiting and transport, the number of immigrants is to be restricted by agreement, with the family as the unit of selection and with guarantees that elaborate precautions will be taken for proper sanitation and education in the Indian settlements.

This is just another picture in the great drama of overpopulation in which a limited number of Indians are provided with an opportunity of finding relief from a hopeless fate in their own overcrowded country. We cannot blame the Government of British Guiana. White men will not undertake the manual labor of clearing the land and developing the valuable resources of the colony; the native won't work, so the only hope of prosperity lies in a further influx of low caste Indians. British Guiana seems to be the only place within the Empire willing to receive the Asiatic, but whether the governing class is willing to properly educate and elevate the Hindoo to the point where he becomes worthless as a coolie laborer, remains to be seen.

British Guiana is certainly storing up trouble for the future. However, the world of to-day must take care of the people of to-day, that is to say, some of the more favored people. Great Britain will not cede one inch of territory or consent to any League mandates that will give white Italy and Germany outlets for their surplus populations under their own flags, but will develop one of the most potentially rich territories of America with its Hindoo subjects, The good people of America would throw a conniption fit if any Latin country bordering on the Caribbean would open its doors to Chinese or Japanese colonization or even grant a land concession to a Japanese syndicate for exploitation. The action of the Government of British Guiana in opening its doors to Hindoo colonization only accentuates the problem of Japan telling her in no uncertain voice that she must seek her solution nearer at home.

Launch of Steam Tug "Maurice"

The steam tug *Maurice*, recently launched by Messrs. John Cran and Somerville, Ltd., shipbuilders, Leith, has run her trials on the Firth of Forth, and has given very satisfactory results. The vessel is well equipped with powerful propelling machinery supplied by the builders, and has, in addition, auxiliary feed and service pumps, feed heater, and a large salvage and fire pump supplied by Messrs. Merryweather.

The deck auxiliaries consist of steam steering gear, steam windlass, and steam capstan. Complete electric lighting installation with powerful searchlight, and a Marconi wireless installation are also included in her equipment.

The vessel has been built under Lloyd's highest class to the order of the Crown Agents for the Colonies, and will be delivered by the builders at the Island of Mauritius.

At the trial trip the Crown Agents were represented by Mr. H. F. Flannery, of Messrs. Flannery, Bagaallay, and Johnson, Ltd., naval architects and consulting engineers, of London, and Mr. A. T. Harris and Mr. A. T. Thomas, representing Lloyd's Registration Society.

Telephone Reconstruction in Tokyo and Yokohama

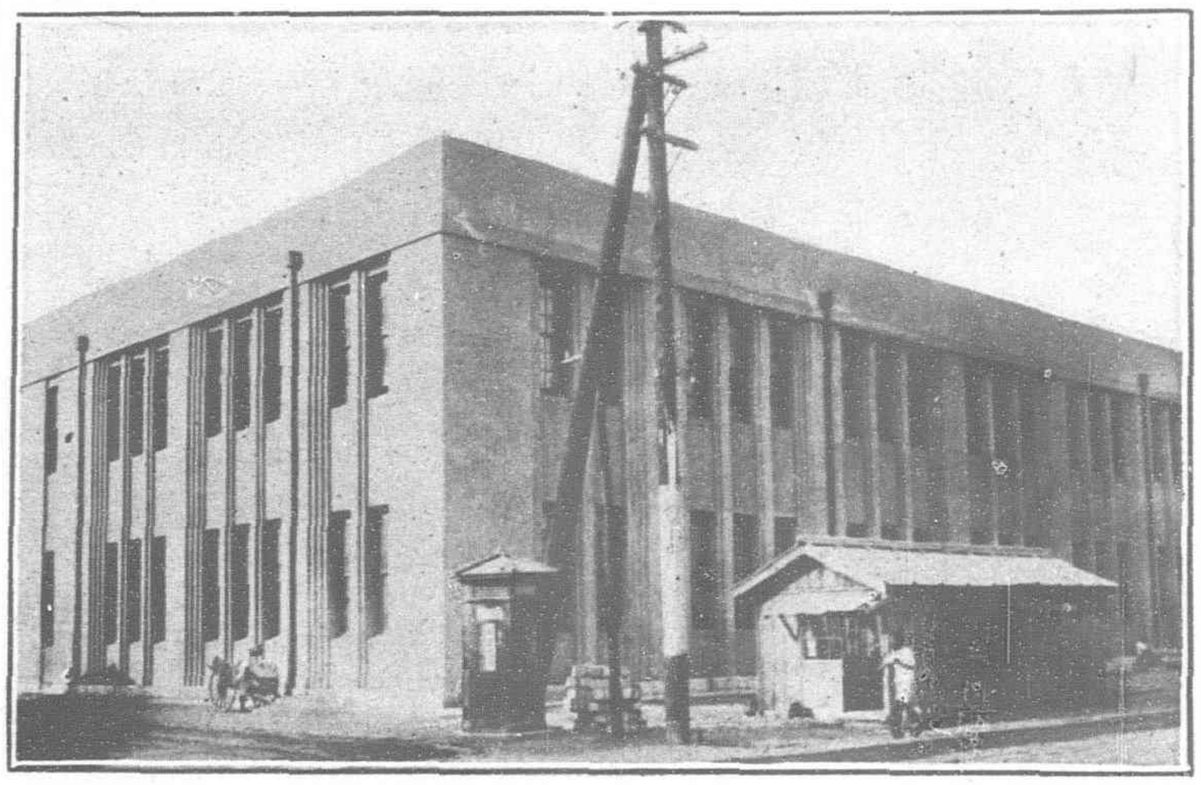
By Sannosuke Inada, Director General of Telegraph and Telephone Engineering Department of Communications, Japan

IN the June-July, 1925, issue of "The Far Eastern Review" the author contributed an article which gave the details of almost complete destruction of the telegraph and telephone plant in Tokyo and Yokohama by the earthquake and consequent conflagrations of September 1, 1923, emergency measures for restoring services, took immediately after the disaster and outline of the reconstruction project. It is proposed in this article to describe about more or less details of the telephone reconstruction work than the former one.

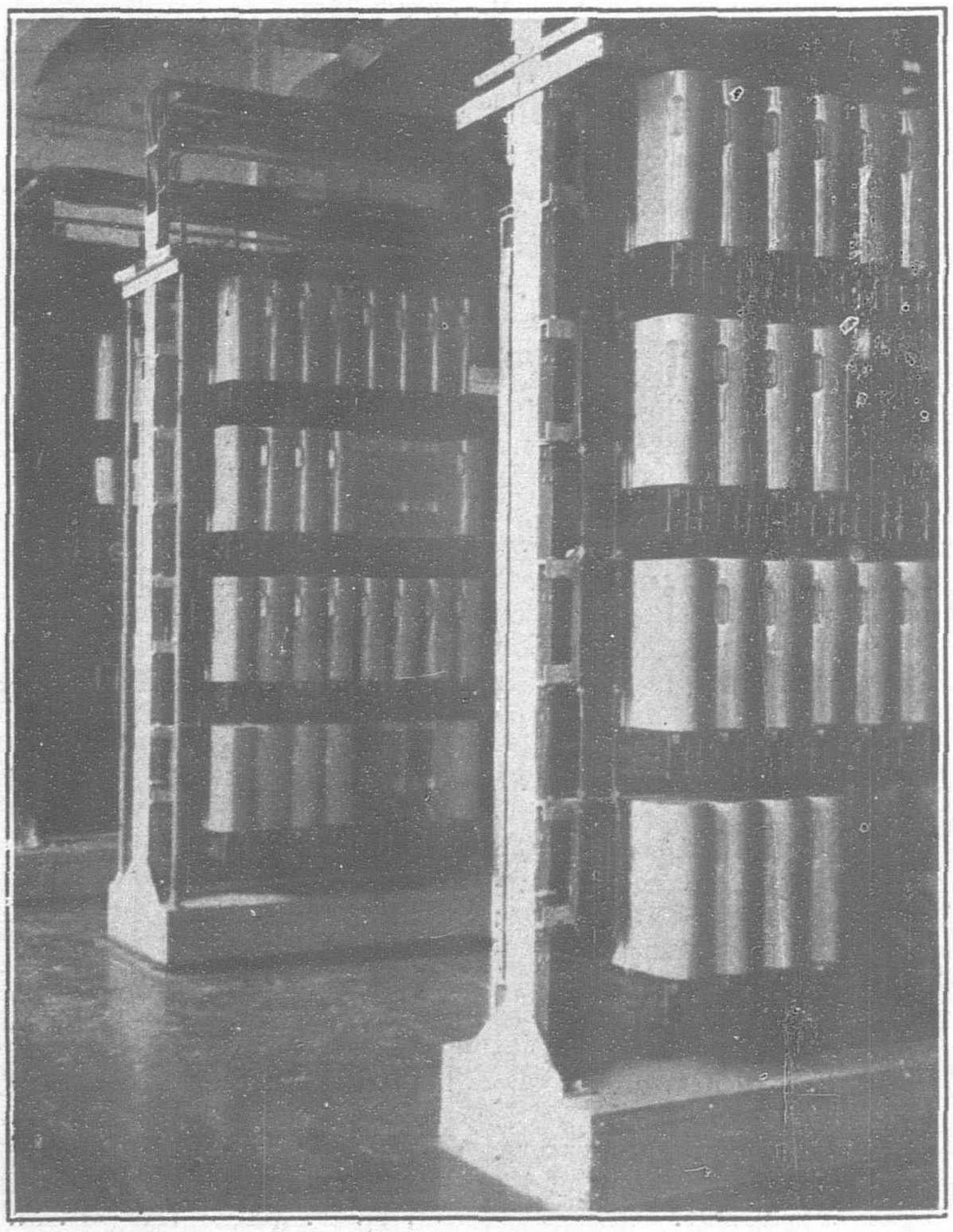
As stated already there were, in Tokyo, before earthquake, approximately 83,000 telephone stations, served from nineteen central offices, all but three of them were equipped with No. 1 type common battery switch boards. Toll service was provided through a common battery toll board, equipped in a toll exchange office, over more than 300 toll circuits. In Yokohama, before the disaster, something over 10,000 telephones were served from two central offices, one of which was of No. 1 type common battery and the other of magneto system: the latter was decided at that time to be replaced by No. 1 type common battery switch boards in a new office Kannai, which building was almost at the finish of construction. The number of toll circuits was something over 100.

Permanent Reconstruction

The loss of the traffic and plant records was of course most seriously felt in connection with the preparation of plans for the permanent part of the restoration project. At the time of the earthquake, a new commercial study and a new fundamental plan for the exchange areas were being made, but the data for these studies were lost. Faced with this situation, it was decided to collect all data possible and from these data to make the necessary traffic and plant estimates for completing the reconstruction work by the end of the fiscal year 1927 including Tokyo and Yokohama and to care for growth in an ordinary manner over a period of approximately ten years.



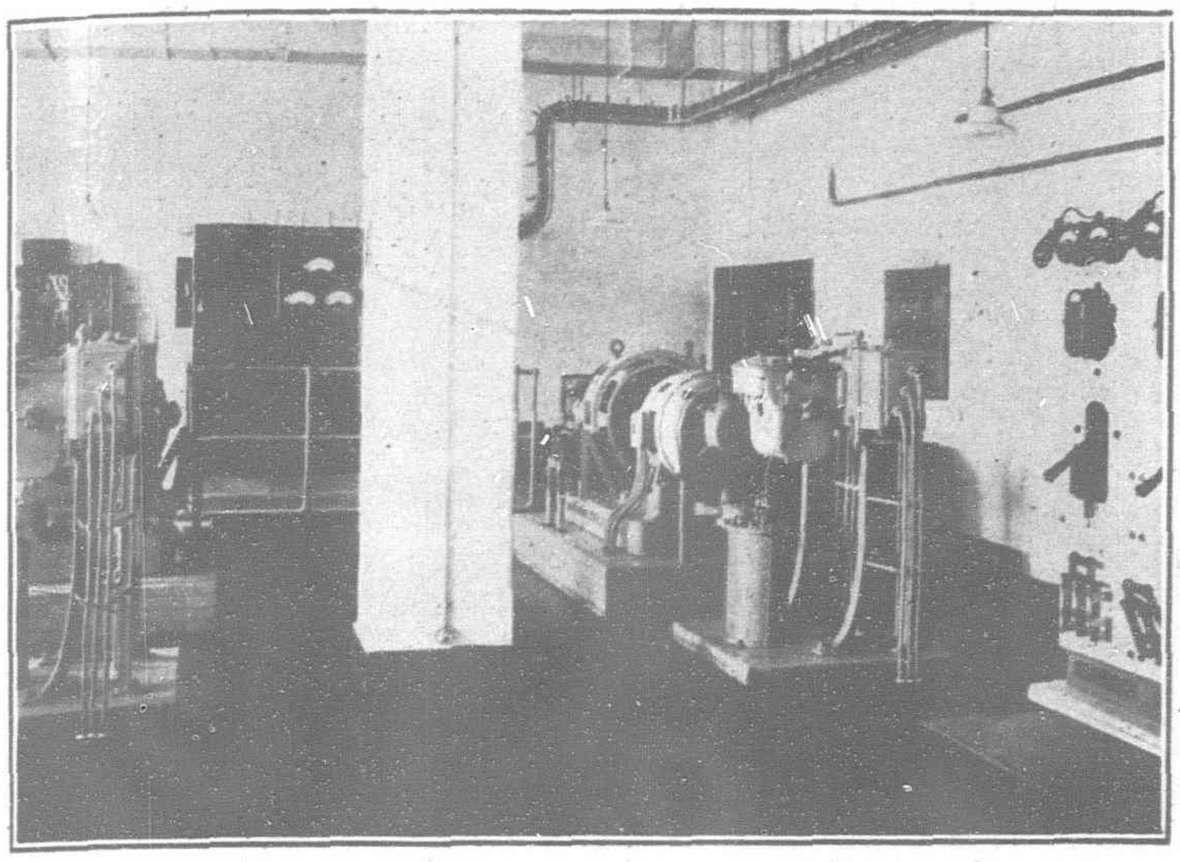
Main Building of the Tokyo Office—Automatic Manufacturing Company



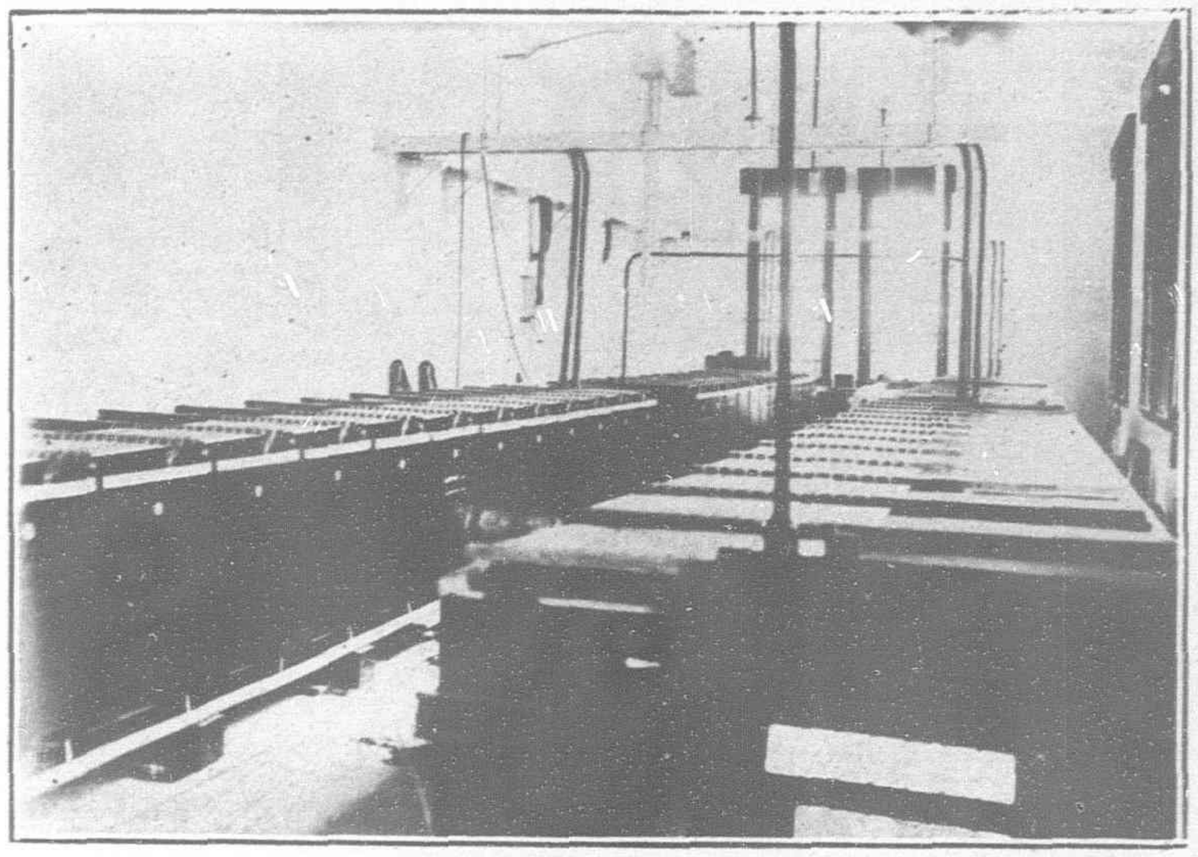
Connector Board

Type of Central Office Equipment

When these estimates were completed, indicating the amount of equipment required, the next important decision to be made was what type of equipment should be used in the new offices. Before the disaster, considerable thought had been given to the use of automatic equipment in a large telephone area, and it was January, 1922, that an experimental automatic plant was opened with stronger system with capacity of 500 lines as the private branch exchange in the building of Department of Communications. The results of their studies indicated that, ultimately, large savings and a better grade of service should be obtained if automatic equipment were used. However, there were many factors, due to local conditions in the Tokyo exchange, which tended to make the introduction of automatic equipment more costly than in most other places. The existing manual equipment was comparatively new and would not reach the end of its useful life for many years. If removed from service, a long time would elapse before any large part of it could be re-used in exchanges out side of Tokyo. Consequently, its replacement by automatic equipment would



Power Room



Battery Room

entail an excessive transfer loss. On the other hand, if automatic equipment were used only to care for growth and necessary replacement, there would be a long period during which its use would result in a heavy loss. This, of course, was because of the limited saving that could be made on the relatively small amount of traffic handled on an automatic basis during this period and to the heavy initial cost of arranging the existing manual switchboards for interchange of traffic with the automatic equipment. These two factors were more serious in Tokyo than in many other places because the rate of growth is somewhat slow and also as there are a larger number of positions required to handle a given amount of traffic, due to the low efficiency of the operators, which is largely brought about by their short reach.

The destruction of so large a part of the manual equipment by the earthquake removed all of these objections and it was accordingly decided to install automatic equipment, provided it could be obtained in time to meet the reconstruction schedule.

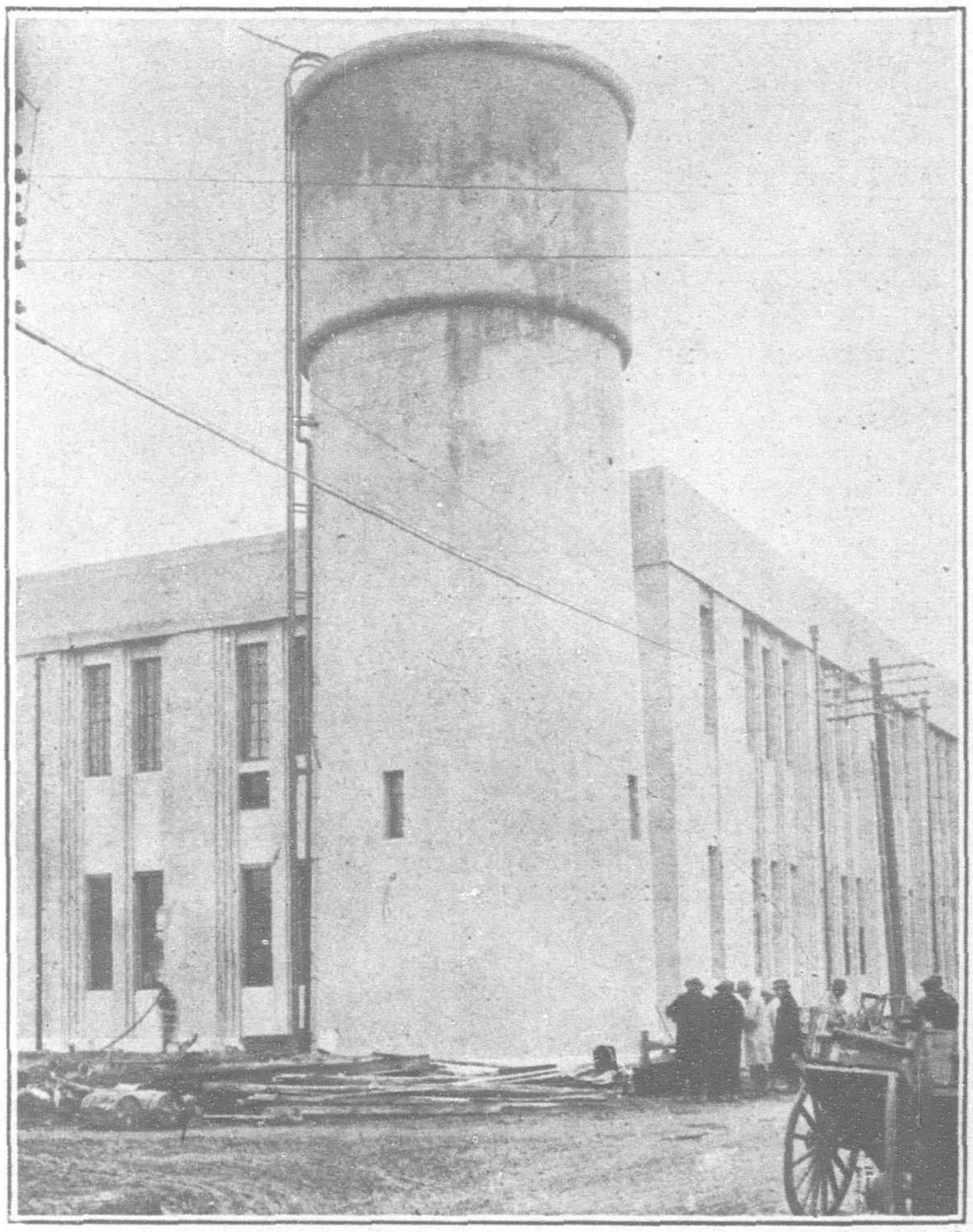
After studying the various types of automatic equipment available, it was decided to use the step-by-step type. The principal reasons leading to this choice were that the amount of step-by-step equipment in use over a long period of time in all parts of the world indicated it to be entirely dependable in operation. It appeared to be somewhat less liable to be damaged by earthquake of comparatively heavy intensity than other types. Its cost compared favorably with that of other types. This type may be applicable even in a large telephone area by introducing director system. With these reasons it was decided to adopt Strowger system of Automatic Telephone Manufacturing Co. type and of Siemens Halske type for Tokyo and Yokohama respectively.

Reconstruction in Tokyo

As stated in the previous article the project of reconstruction in Tokyo was divided into two stages: the first to be finished at the end of the fiscal year 1925 and the second of 1926. The first programme of the work had been effected satisfactorily at the stated time. Six exchange offices, Ote, Yotsuya, Asakusa. Ginza, Naniwa and Sumida, were equipped one after one with No, 1 type common battery switch boards, and telephone stations were restored. Additions to the central office equipment and outside plant were made to bring the capacity to 70,000 lines by January first 1926. By the opening of five automatic offices, Kyobashi, Honjyo, Shitaya, Kanda and Kayabacho, in new buildings and switching office Kudan, the total capacity of telephone service was brought to 83,000 lines by the end of March 1926: total suspended stations, thus, were restored.

Magneto toll board, which was equipped by emergency restoration, was replaced on September 5, 1925 by a temporary 100-position No. 1 type toll board and service resumed over 251 toll lines and the lines had been increased to 358 by the end of March 1926, taking consideration for normal growth of toll service.

The second stage of reconstruction work is now in course of execution with continuity to the first one.



Water Tank for Adosole Plant and Fire Service

Schedules for Projection of Automatic Office Installation

The traffic and plant estimates indicated that ten partial units of new equipment should be installed in automatic basis by the end of the fiscal year 1926 to replace destroyed plant and to care for normal growth. For reasons of finance, and because of the volume of work involved, it was necessary to divide the project into two stages: the first comprised of five local and one switching unit to serve approximately 27,000 lines, to be completed during the fiscal year 1925, would provide sufficient facilities to restore service to all subscribers; the second, comprised of five local units serving approximately 18,000 lines, to be completed in 1926, would provide relief for the overloaded manual units and permit the distributing plant to be re-arranged

31

中村十郎	神田25-3907	神、濱路、二ノ四、橋本方
中村儀輔	神田25-3187	神、駿河臺南甲賀、八
中村與治	神田25-2414	神、錦、三ノ二五
中村　舒	下谷83-5226	下、上野櫻木、三六
中村庄八	浪花67-1177	日、馬喰、一ノ四
中村庄八商店	浪花67-5316 浪花67-5381	日、馬喰、一ノ三、四
中村商會 中村尋五郎	神田25-2976	神、南塗物、七
中村拾吉	浪花67-4964	日、小傳馬、三ノ西綠柯岸六號
中村與吉	小石川85-7745	北豊、西巢鴨池袋、六一二
中村與之助	下谷83-5605	神、末廣、二二
中村春山	下谷83-5972	北豊、日暮里渡邊、一〇四〇
中村卓造	神田25-3488	神、西紺田、
中村竹次郎	下谷83-5172	神、旅籠、二ノ一、長山方
中村民次郎	浪花67-6974	日、小傳馬上、二二
中村千代吉	浪花67-4811	日、小傳馬上、四
中村つね	神田25-2409	神、濱路、一ノ一、龜井方
中村恒藏	下谷83-6368	神、仲、二ノ五、香川方
中村恒吉	浪花67-6653	日、小傳馬、二ノ一二
中村てう	神田25-4085	神、鍋田、一
中村鐵太郎 中鐵商店	浪花67-6934	神、大和、二七
中村東作 中村小兒科醫院	下谷83-5857	神、旅籠、二ノ一三、一四
中村時藏	神田25-3134	神、御、一
中村德松	神田25-3069	神、荻原樂、一、安島方
中村豐五郎	神田25-2876	神、雉子町、六
中村內科醫院 中村竹次郎	神田25-3750	神、長狹樂、二五
中村中三郎	浪花67-5287	日、馬喰、一ノ一一
中村牛兵衛 中東京出張店	神田25-0868	神、佐柄木、二一
中村秀吉	浪花67-5120	神、元岩井、八
中村文平	下谷83-5648	淺、北淸島、七五
中村万次郎	浪花67-7753	神、久右衛門、一、佐藤方
中村村吉	浪花67-7258	神、橋本、一ノ三
中村やそ	下谷83-6577	北豊、三河島、三三七六野崎方
中村保一	下谷83-5964	北豊、日暮里谷中本、二四〇
中村保太郎	浪花67-2222	神、久右衛門、五
中村六郎	神田25-4062	神、小柳、三一
中屋良市	神田25-2657	神、表猿樂、三、齋藤方
中安栄兵衛	浪花67-3393	日、小傳馬、三ノ一〇武藤方
中山亞鉛鑛會合名會社	浪花67-6366 浪花67-6367	神、鍛木、一八、中山方
中山悦治	浪花67-2143	日、魚井、一九
中山龜吉	神田25-2740	神、多、二ノ八
中山黑鉛店 中山專吉	下谷83-5752	神、末廣、四
中山勢ん	浪花67-5128	神、御厩河岸、一八
中山つる 新とわ	下谷83-5588	下、池ノ端仲、二八
中山直行	下谷83-5474	淺、淺島、一ノ一
中山仁太郎	下谷83-6583	下、東黑門、一九、齋井方
中山福助	下谷83-4783	神、松永、三
仲尾和三郎	青山36-7015	赤、仲ノ、二九
仲田　榮	下谷83-5705	北豊、根岸町田圃、一八八〇
仲谷與之助	神田25-2418	神、下白壁、
永井帳器店 永井長七	浪花67-3266	神、江川、一
永井龜之助	下谷83-3834	下、御徒、二ノ一六

永井龜之助	下谷83-3934	下、御徒、二ノ一六
永井松子	四谷35-8691	四、永住、二、平岡方
永井和一郎 東京器械課本部	下谷83-5517	神、五軒、一九
永田年之助	神田25-3542	神、安和堂、一〇、金岡小學兒童服改善普及會內
永田錦藏	神田25-2482	神、元大工、一、梅田方
永塚岡三郎	下谷83-5223	下、西黑門、一六
永光政二	四谷35-6734	麹、上六番、八
長井庄吉 上田屋	神田25-3558	神、連雀保、一
長井商店 谷中工場 長井九郎左衛門	下谷83-5075	下、谷中初音、四ノ一七一
長尾秀一	青山36-2244	麻、笄、七九
長尾惟二	下谷83-5943	下、谷中天王寺、二三
長岡英一	下谷83-5558	下、竹、四六竹町郵便局內
長岡銀行 東京支店	神田25-4260	神、旭、二五、淺野方
長岡宇太郎	下谷83-5354	下、上野櫻木、五一
長岡秀四郎 長岡內科醫院	下谷83-1353	神、山本、二一
長倉そう	神田25-3721	神、鍛冶、五、澤井方
長澤長治郎	下谷83-5547	總、湯島三組、八一中山方
長澤米藏	下谷83-4655	下、東黑門、一〇
長島七郎次	下谷83-5891	北豊、三河島、二七二
長島明次	下谷83-5951	神、松富、一五
長瀨商會 花王石鹼本舖	浪花67-0004 浪花67-0005 浪花67-0006 浪花67-0021 浪花67-0022	日、馬喰、二ノ一二
長瀨富一	浪花67-7011	日、馬喰、二　三、南海商事會社方
長竹正雄	下谷83-4683	神、金澤、二四
長野商店 長野定雄	神田25-0708	神、濱路、二ノ三
生江澤汎愛生堂內科院	神田25-0203	神、濱路、一ノ一
豊木錦十郎	小石川85-7663	總、駒込神、九三
浪花春司 宮下修三	下谷83-5610	下、長者、一ノ一七
行方博雄	下谷83-5473	下、車坂、一〇〇
ならや 池田善兵衛	浪花67-5529	神、淺島、三〇
鍋谷金村	下谷83-5559	下、南稻荷、四
成島菊次郎	浪花67-7305	日、馬喰、二ノ一九高岡方
成瀨豊吉	下谷83-4710	下、竹、一二ノ一七號
南條忠治	神田25-3264	神、濱路、二ノ二、齋藤方
南部喜吉	神田25-2634	神、松田、一五

ニ　之　部

二神正五郎	神田25-3014	神、龜卸石、一七
二重組消火器株式會社 東京出張所	下谷83-5340	神、旅籠、一ノ二
二戸駒吉	浪花67-5114	日、小傳馬上、二三
仁神てう	神田25-3778	神、多、一ノ七、山口方
仁木ケウ	蒲田74-0305	淺、鮫、一ノ二、香藤方
仁藤安次郎	神田25-2474 神田25-2475	神、錦、一ノ二
丹羽弟二郎	下谷83-5863	下、谷中坂、三五
丹羽久次郎病院	浪花67-0594	日、龜島、五

Fig. 1—A Page from Tokyo's Telephone Book

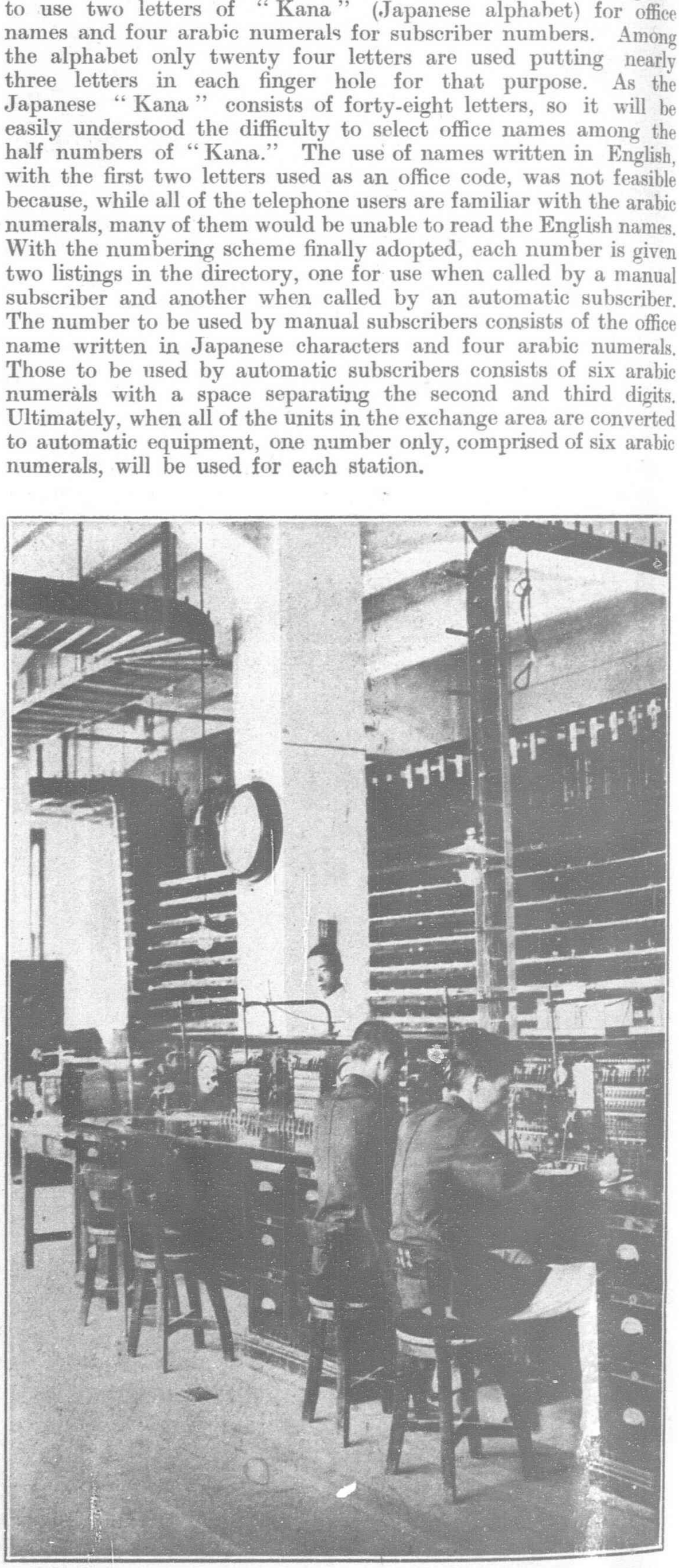
to conform to the proper central office areas. For both stages it was of course also necessary to provide the necessary call indicator and "A" board dialling facilities in the existing manual offices to care for inter-change of traffic between the manual and automatic subscribers.

The important factors determining the time intervals of the schedule for the First Stage of the project were the time required for doing the engineering work, the time required the erection of the new buildings, and the time at which the equipment could be delivered. None of the domestic factories were prepared to manufacture automatic equipment. Delivery information on the approximate amount of equipment required for the First Stage of the project was requested from both American and European factories. At that time, the schedules of all foreign telephone manufacturing companies were crowded in order to care for the excessive demand for telephone service brought about by the post-war conditions. However, Tokyo's need was considered paramount and by taking extraordinary measures, it seemed likely that the equipment could be delivered in the time required for the erection of the central office buildings. The detailed engineering was accordingly undertaken on an automatic basis.

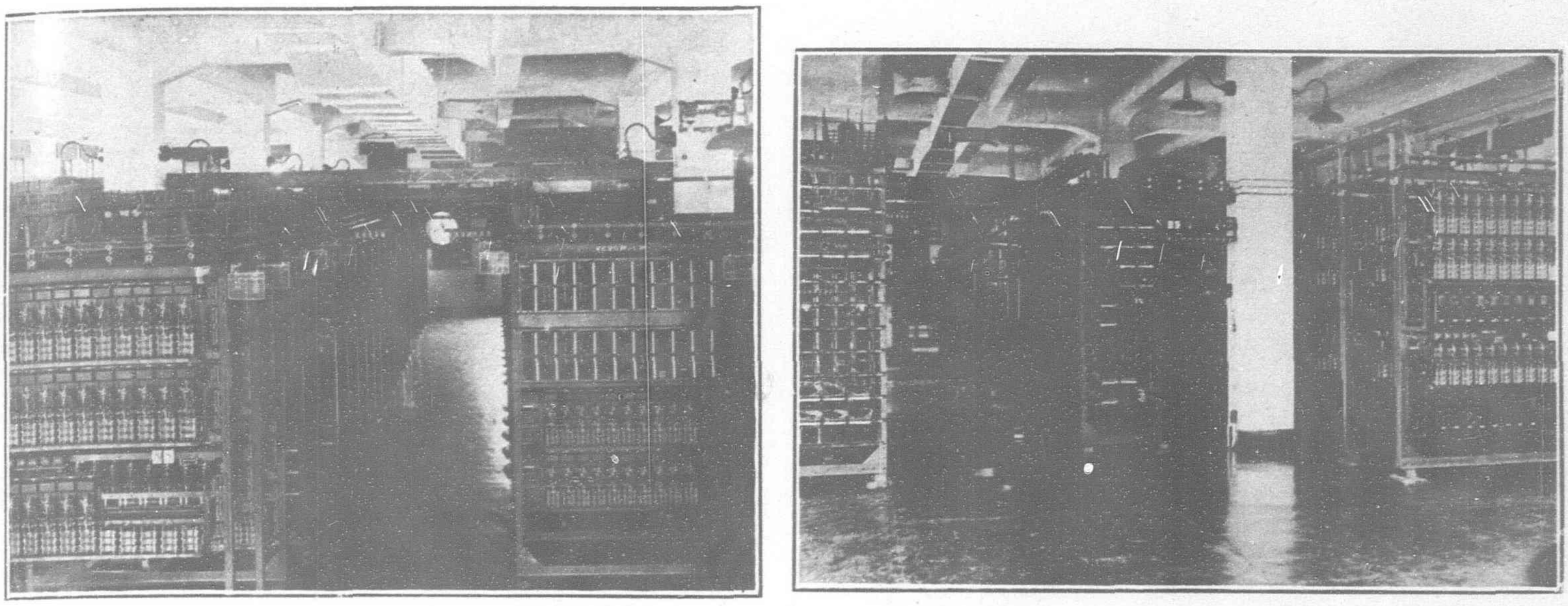
Numbering Scheme:

The number of units required in the exchange area at the time of the completion of the reconstruction work made it necessary to use six-digit numbers for a considerable part of the stations and if a combination of five and six digit numbering scheme were adopted it would be necessary later, as the number of units increased, to change the five to six digit numbers. Largely for this reason and also because the use of six-digit numbers permitted fuller advantage to be taken of tandem centers, it was decided to use six-digit numbers for all stations in the exchange area.

Due to the peculiarities of the Japanese written language, no satisfactory method was evolved for using characters for the first two digits of a station number to indicate the office code. Consideration was given to using one Japanese character, to indicate one of the major districts into which the exchange area was divided, and five arabic numberals. It was thought, however, that such numbers would be little if any easier to remember than numbers comprised of six arabic numerals. It was also investigated to use two letters of "Kana" (Japanese alphabet) for office names and four arabic numerals for subscriber numbers. Among the alphabet only twenty four letters are used putting nearly three letters in each finger hole for that purpose. As the Japanese "Kana" consists of forty-eight letters, so it will be easily understood the difficulty to select office names among the half numbers of "Kana." The use of names written in English, with the first two letters used as an office code, was not feasible because, while all of the telephone users are familiar with the arabic numerals, many of them would be unable to read the English names. With the numbering scheme finally adopted, each number is given two listings in the directory, one for use when called by a manual subscriber and another when called by an automatic subscriber. The number to be used by manual subscribers consists of the office name written in Japanese characters and four arabic numerals. Those to be used by automatic subscribers consists of six arabic numerals with a space separating the second and third digits. Ultimately, when all of the units in the exchange area are converted to automatic equipment, one number only, comprised of six arabic numerals, will be used for each station.



Test Room



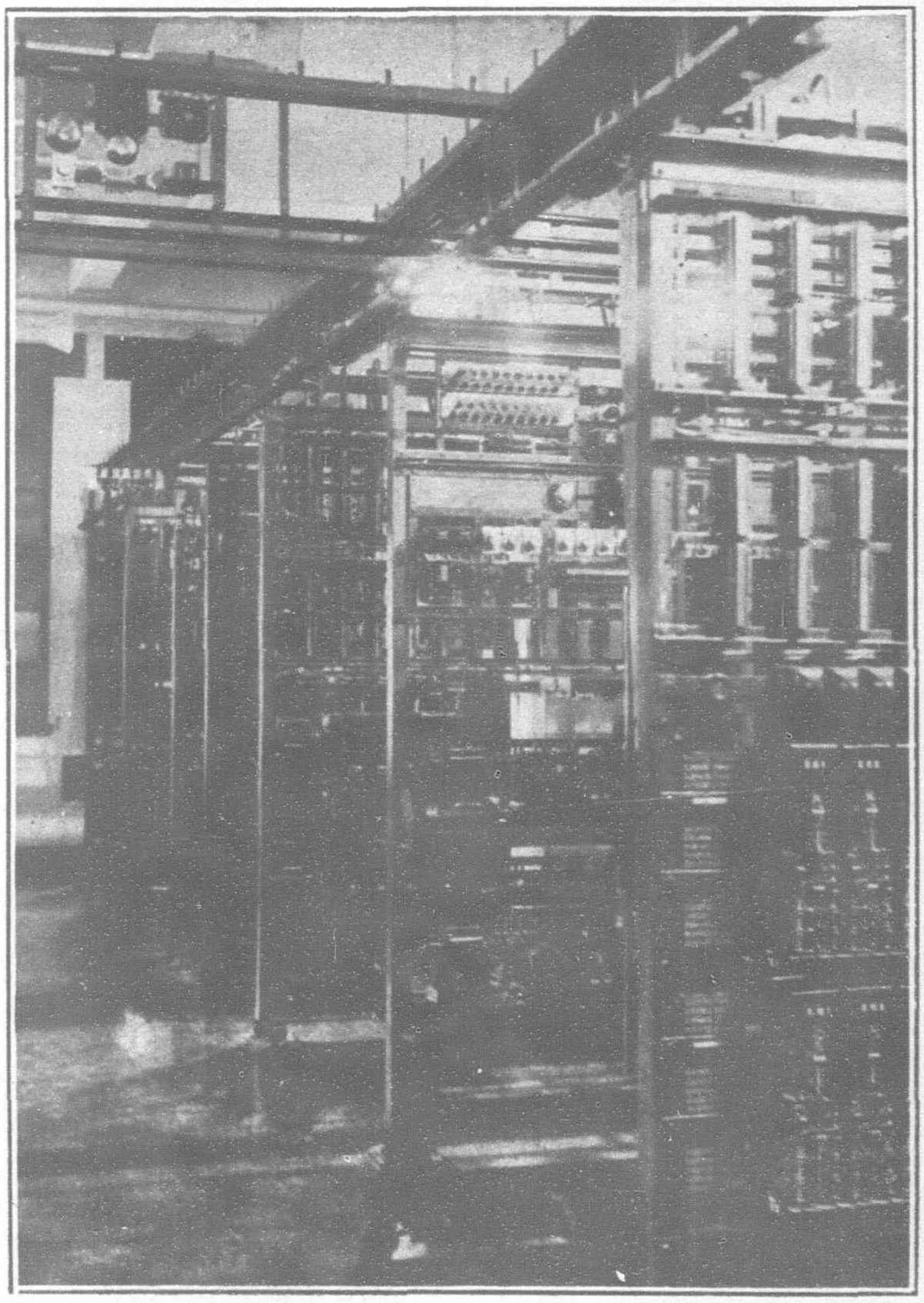
General View of the Yokohama Switch Room

Figure No. 1 shows a section from the present Tokyo directory.

Trunking System :

The choice of the trunking and equipment arrangements was largely influenced by the numbering scheme adopted. The entire exchange area naturally divided itself into seven major districts, as indicated on the map shown in Fig. No. 2. Studies were made to determine the relative economies of a trunking system using direct trunks between all offices, as compared with a system locating second selectors at tandem centers in each district. In making the studies individual consideration was given to the traffic from automatic offices to other automatic offices, from automatic to manual offices and from manual to automatic offices. The results indicated that large savings could be made by using tandem centers for routing traffic between automatic offices and for the traffic from automatic to manual offices. In the case of traffic from manual to automatic offices, the saving of trunks and selecters was not considered sufficient to off-set the loss of operating efficiency introduced by requiring the operators to dial five-digit numbers in order to route the calls through the tandem centers.

Consideration was also given to the use of the director system. Sufficient data as to the costs and economies obtained with the director were not available at that time to permit a detailed study to be made. However, the use of numerals instead of letters in the office codes for the numbering scheme made it impossible to obtain much benefit from the chief advantage claimed for the director ; that is, the ability to dissociate the routing of the calls from the actual office code digits dialled. It seemed that, at least for a number of years to come, the savings, if there were any, due to using the director, would not off-set the disadvantages introduced by the complicated circuits and consequent increase in maintenance costs. Moreover, it should be considered that economy of trunk lines by use of the director system could fully be secured in the case of new installation of trunk system. But it is not the case in Tokyo : cables and conduits for inter-office trunks were already being in existence, although some of which had been damaged by the earthquake. It was also thought that the director system was still in the development stage and that, if it were ordered, the chances of securing the deliveries required would be decreased. In view of these considerations it was decided to proceed on the basis of a straight step-by-step trunking system. Figure No. 3 shows the trunking diagram adopted for handling the trunking between automatic office and from automatic to manual offices for the First Stage of the project. Fig. No. 4 shows a similar diagram for the trunking system at the completion of the Second Stage. The direct dial trunks from each manual to each automatic offices and the direct call circuit trunks from each manual office to every other manual office are not shown on the diagram.



The Signal Machine in the Second Row

First Stage of Automatic Office Installation

Main traffic data at the end of the fiscal year 1925, on which engineered the equipment for the first job, were estimated as follows :

Main Traffic Data for the First Stage Job (at the End of the Fiscal Year 1925)

Table I.

Districts	Outward	No. of Lines	B.H.C. per Line Inward	Ote	(Kanda)	Ushigome	Yotsuya	Awoyama	Takanawa	(Kyobashi)	Ginza	(Kayabacho)	Naniwa	(Honjyo)	Sumida	(Shitaya)	Asakusa	Koishikawa	Total
				(3,697)		(1,700)	(1.119)	(441)	(1,057)	(1,885)	(2,760)	(847)	(1,868)	(842)	(953)	(792)	(1,062)	(635)	(20,309)
2	Ote	4,545	2.57	1,796	651	1,122	685	306	853	1,593	1,360	715	1,454	570	358	485	568	403	12.919
	(Kanda)	3,722	1.45	763	1,306	547	590	186	285	451	320	200	625	349	166	382	305	350	6,825
				(2.250)							(2,300)				(563)		(488)		(17,972)
	Ushigome ...	6,202	2.04	1,798	497	4,100	1,520	728	1,025	1,426	1,165	546	625	566	155	485	227	853	15,766
				(1,354)							(1,046)				(337)		(500)		(11,724)
3	Yotsuya	6,587	1.00	809	680	1,387	2,235	603	580	667	640	404	410	351	130	500	280	670	10,346
				(717)							(906)				(205)		(270)		(8,204)
	Awoyama	7,143	1.10	546	240	820	835	1,555	870	497	633	200	300	225	68	300	145	265	7,499
				(1,360)							(1,847)				(437)		(470)		(13,438)
4	Takanawa	6,965	1.19	986	395	1,128	767	934	2,768	1,044	1,264	486	578	441	183	373	395	410	12,152
				(2,014)											(772)		(500)		(15,050)
	(Kyobashi) ...	6,112	2.00	1,709	486	1,149	720	446	1,015	3,338	1,438	757	800	780	324	408	381	427	14,178
5				(2,850)		(1,650)	(1,000)	(650)	(1,450)		(6,150)		(1,800)		(1,210)		(917)	(500)	(21,383)
	Ginza	4,195	2.47	1,423	420	1,429	855	585	1,373	1,495	2,856	485	502	429	194	377	286	399	13,108
				(1,225)															(10,218)
	(Kayabacho) ...	2,955	3.10	1,055	280	593	552	319	461	900	456	2,340	1,212	580	200	370	350	380	10,048
6				(2,326)							(2,075)				(900)		(800)		(15,633)
	Naniwa	6,146	1.85	1,521	612	714	546	311	487	729	506	971	3,040	855	408	656	620	411	12,587
				(930)													(650)		(9,488)
	(Honjyo)	5,000	1.40	752	306	521	290	144	307	713	359	540	810	2,760	505	382	414	271	9,074
7				(970)		(480)	(320)	(170)	(330)		(1,295)		(1,000)		(3,230)		(900)	(280)	(10,775)
	Sumida	2,841	1.33	433	164	217	230	137	223	330	190	175	443	504	843	247	372	179	4,687
				(923)															(7,456)
	(Shitaya)	5,796	0.92	578	433	518	444	171	282	445	395	420	674	303	205	1,012	659	570	7,111
				(1,163)		(637)	(600)	(230)	(460)		(1,331)	(550)	(850)	(470)	(840)		(2,655)	(650)	(12,056)
8	Asakusa	5,905	1.05	682	305	293	395	148	363	469	358	350	797	366	330	675	2,168	345	8,044
				(988)							(794)				(309)		(600)		(10.437)
	Koishikawa ...	6,886	1.06	705	381	960	1,004	380	474	513	479	395	657	294	148	622	322	2,066	9,400
				(23,530)		(16,904)	(12,542)	(7,268)	(11,851)		(23,451)	(9,316)	(15,449)	(9,749)	(10,832)	(7,581)	(11,126)	(8,940)	(190,968)
	Total	81,000	1.54	15,556	7,156	15,498	11,668	6,953	11,366	14,610	12,419	8,984	13,127	9,373	4,217	7,274	7,542	8,001	153,744
	Grouping Factors ...			0.80	0.80	0.75	0.75	0.75	0.80	0.90	0.90	0.85	0.80	0.85	0.85	0.80	0.75	0.85	

Remarks :—

Offices in Brackets denote Automatic Ones.

Figures in Brackets denote that on which designed, according to Cutovers are not to be effected at one time.

Equipment Features:

As indicated on the trunking diagrams, practically no features are used requiring special apparatus. 25-point primary rotary line switches without local secondaries were used in all offices. The same type line switches were also used as outtrunk secondary switches wherever the size of the trunk groups made it economical. The delayed impulse type dial standardized by the British Post Office was used to minimize the possibility of trouble which would result if the outgoing trunk secondary switch did not complete its hunting during the time interval between dialling the digits of a called number.

Toll train equipment was provided in each automatic office providing high efficiency transmission and through ringing and supervision for the toll operator. The usual special services were provided, individual intercepting, repair and test desks being located in each office. The toll recording operators and the centralized information bureau are reached over a group of special service trunks, outgoing from special selectors in each office and terminating on a group of special in-coming third selectors located in the building housing the toll board and information desks. As soon as space in the new Marunouchi Building is available it is planned to install there a new toll board of the No. 3 type and a new central information board. At that time a new group of incoming special third selectors will also be provided.

Each trunk board was located on a bed plate of ¼-in. boiler plate set flush with the floor, in order to distribute the weight of the board as a protection against earthquake shock. Special bracing between boards was also provided, amounting practically to a grill work over the entire equipment.

In all First Stage offices power plants having duplicate sets of batteries are used, each battery having capacity for carrying the office twenty-four hours. The wiring and control apparatus are arranged for charging one battery while the other is in service so that no counter E.M.F. cells are required. Two motor-driven charging generators are provided, each having capacity to charge the battery, one for regular charging and one for reserve. Both are telephone type machines, so that, in case of emergency, they can be used to carry the switchboard load directly without introducing undue noise in the talking circuits.

Two ringing machine sets are provided, one A.C. motor generator set, operated by current from the commercial power supply (for regular service) and one dynamotor for emergency service, operating from the 50 volt central office battery. The ringing machines are fitted with the necessary interrupters for furnishing the tones and flashes required by supervisory and discriminating features.

Buildings:

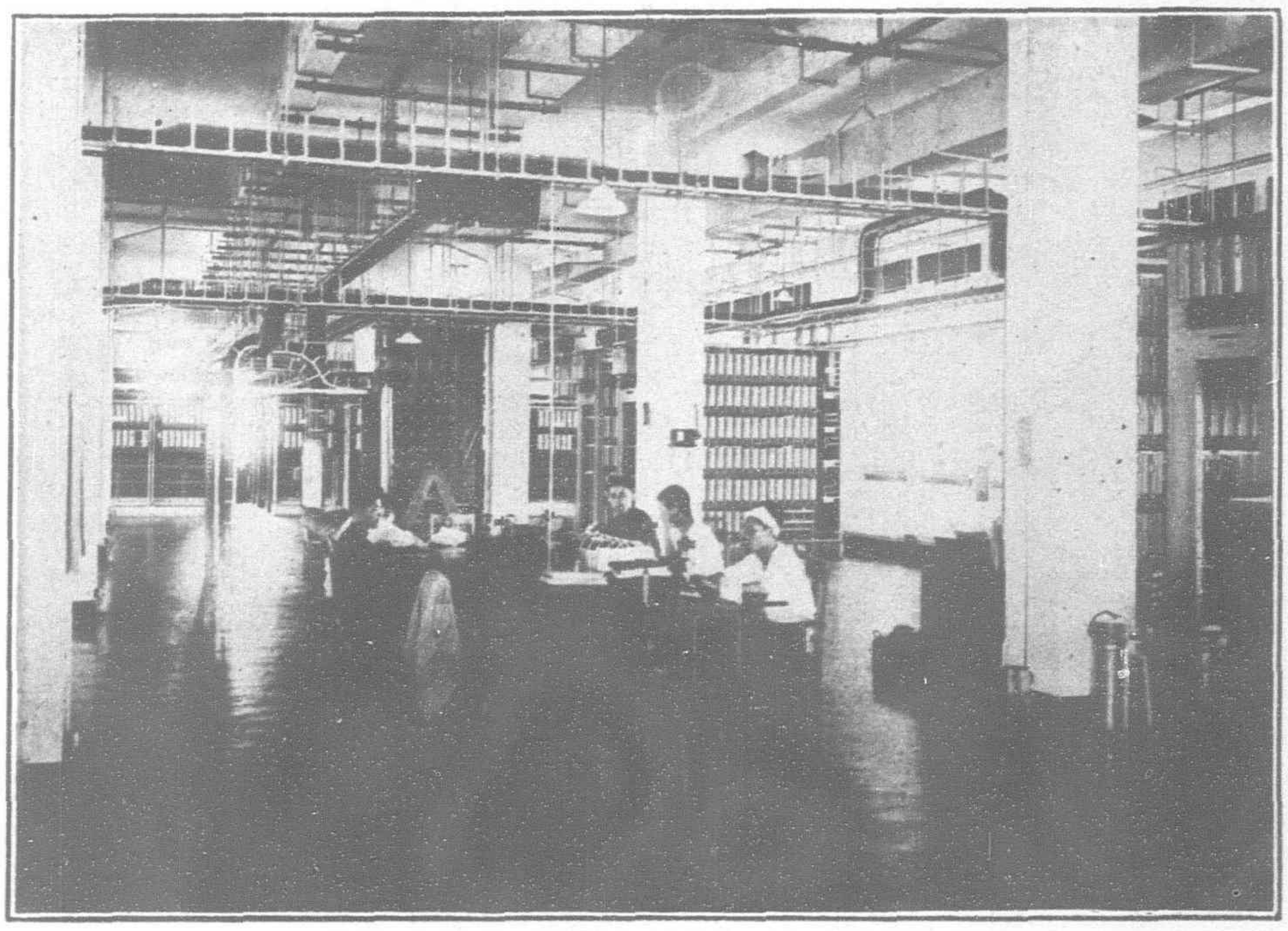
The building program for the First Stage of the project included six new buildings, each providing space for one full unit of automatic equipment and for tandem switches where required. As stated above, only five local units were to be installed during the First Stage, but, in order to house the tandem switches required for the trunking system for that stage, it was necessary to advance the completion of one of the Second Stage offices (Kudan).

All the buildings are of reinforced concrete fireproof construction. Full advantage was taken of the information available from analysis of injuries done to buildings by the 1923 earthquake and conflagration. They were designed in accordance with the latest engineering practice to withstand an earthquake shock having a seismic factor of 0.2 (ratio of acceleration of earthquake to that of gravity), which is twice the intensity of that of the earthquake of 1923.

Metal sheathed doors and double windows are provided for the terminal and switch rooms. The inner windows are of the French type, using hinged metal frames. The outer windows are wire glass, set in metal sashes. Steel roller fire shutters are provided at all windows and doors of the switch and terminal rooms, arranged to close by their own weight after being manually released. In addition, water curtains are provided at the windows, arranged to be turned on from a point outside the building after the fire shutters are closed.

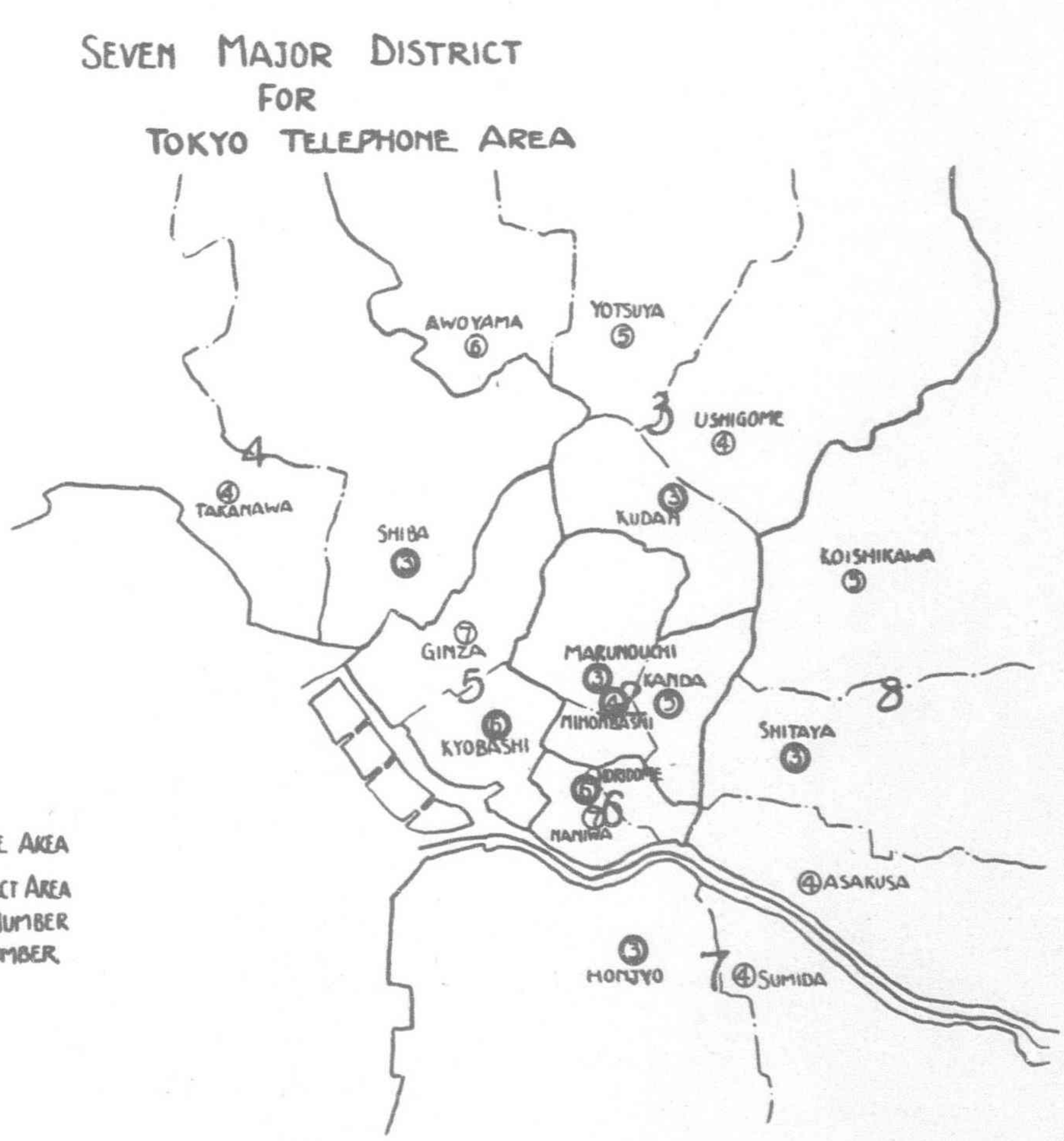
In order to provide against a failure of the water supply in case where the mains were broken at the time of an earthquake, an elevated reinforced concrete storage tank for water is provided, adjacent to each of the buildings, with a capacity estimated to be sufficient to supply the water curtains and local fire hose during a conflagration. These tanks are designed to withstand an earthquake of an intensity equal to that against which the buildings themselves are designed.

To insure the satisfactory operation of the equipment during the periods of extreme humidity which prevail during the summer season, a combined heating and air-conditioning plant is provided at each building. The system used, known as the "Adosole" system, was developed in Japan, and consists of four principal elements: a heating plant of the usual hot-air furnace type, an "adosole" de-humidifying plant, an air-washing plant, and a circulating system of pipes and blowers. The piping is so arranged that the heating, drying and washing features may all be used at the same time or any of them by-passed when desired.

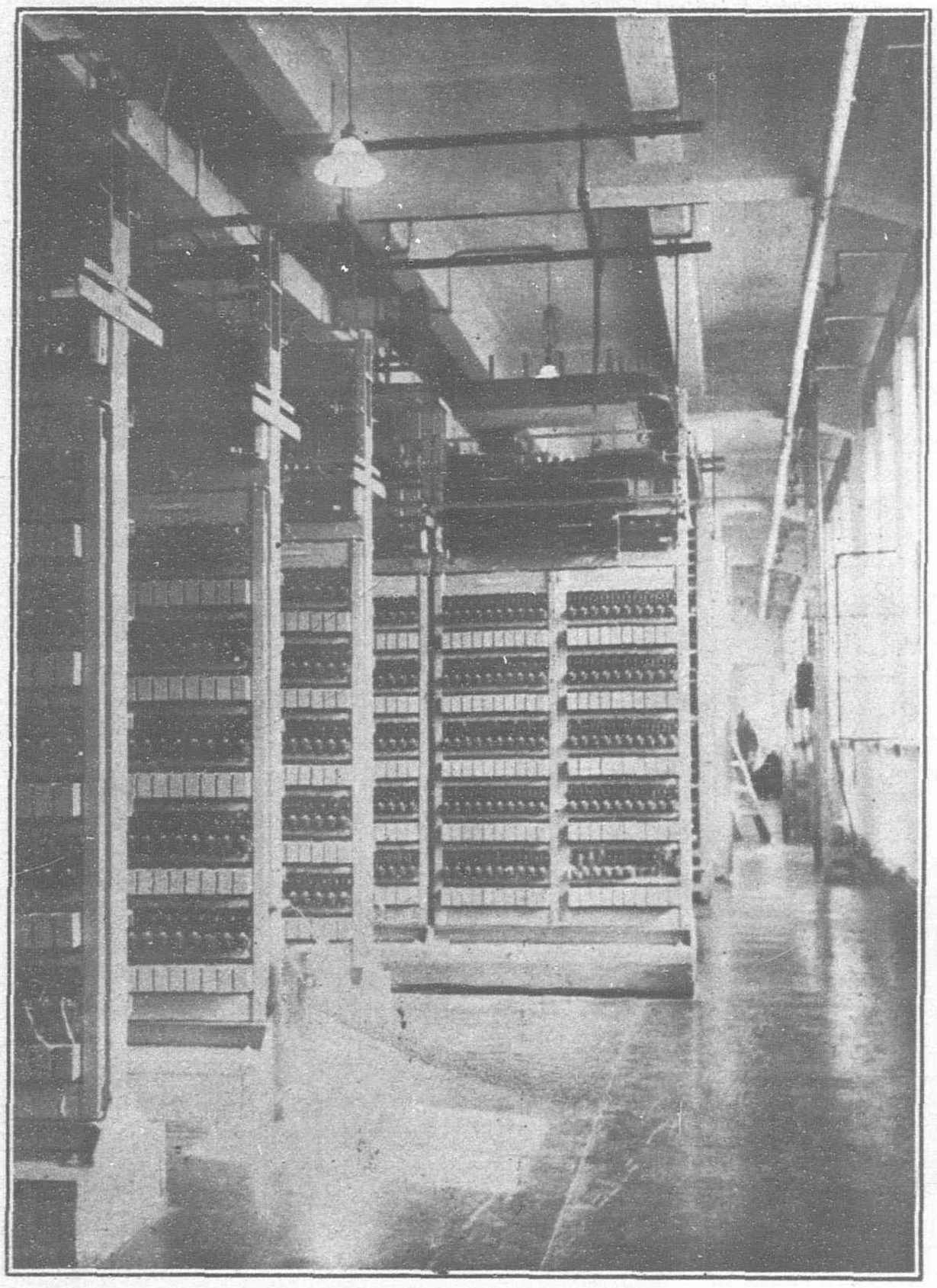


General View of Switch Room

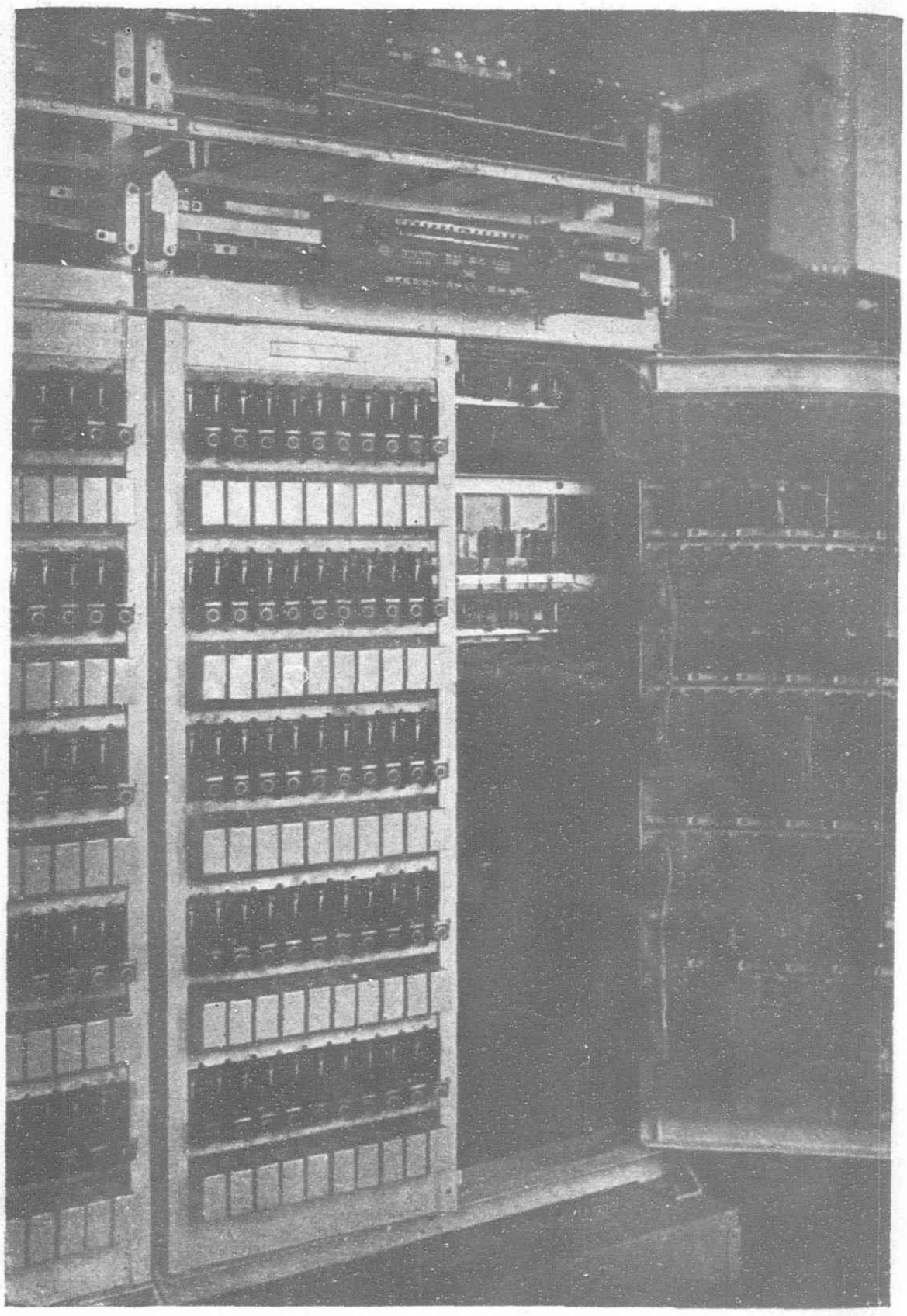
Fig 2



The de-humidifier consists of a tank holding, in the case of the telephone buildings, approximately ten tons of a porous mineral mine and treated chemically in Japan and given the trade name "Adosole," which absorbs the moisture from the air driven through it. After drying out, "Adosole" may be re-used and duplicate tanks are accordingly provided, with piping so arranged that, while one is in service, in the air-circulating system of the building, the other is connected to a pipe line which blows air heated by a separate heater through



Line Switch Board



Another View of Line Switch Board

it and dries it. These plants are said to be capable to maintain in the switch and terminal rooms, at all seasons, a temperature between sixty-five and eighty-five degrees Fahrenheit and a relative humidity between sixty and seventy. The precautions necessary for protection against earthquakes rather than economies in ground area or equipment layouts were in general the controlling factors in determining the height of the buildings and the beam spans and column centers. Standards for the dimensions between colum s were established and used in all buildings. All terminal and switch rooms were made three bays wide and the differences in floor space requirements for the various offices were cared for by buildings of different lengths. Figure No. 5 shows a typical floor plan arrangement for a switch-

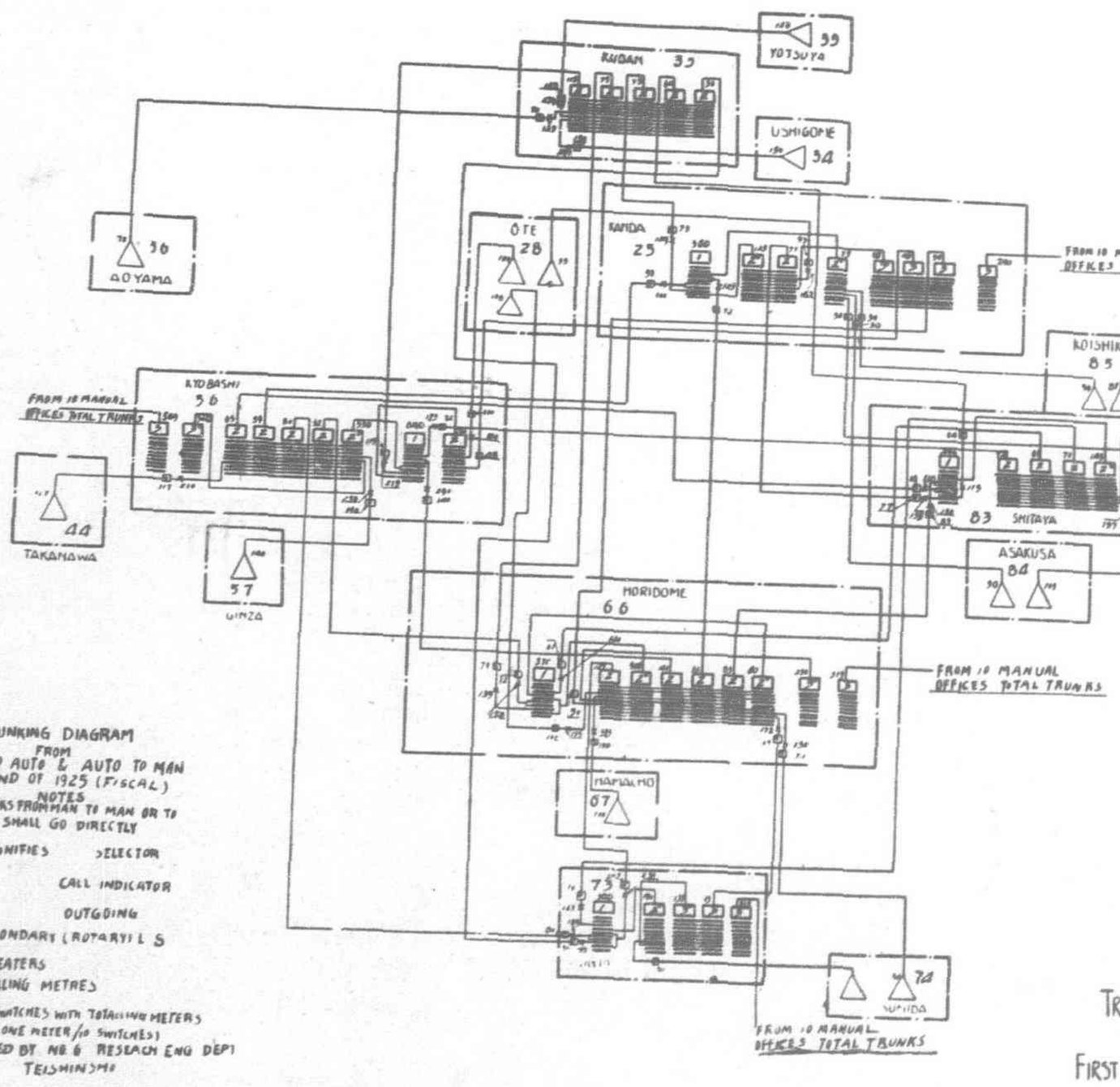


Fig. 3

Trunking Diagram
for
First Stage Installation Tokyo

room. It will be noted that an arrangement satisfactory from a cabling and maintenance standpoint is obtained without excessive waste of space.

Installation and Cut-overs:

The reconstruction of the buildings was far enough advanced and sufficient equipment was on hand so that the installation in two offices was started in February, 1925, The installation work was done by the installing forces of the Tokyo Operating Division.

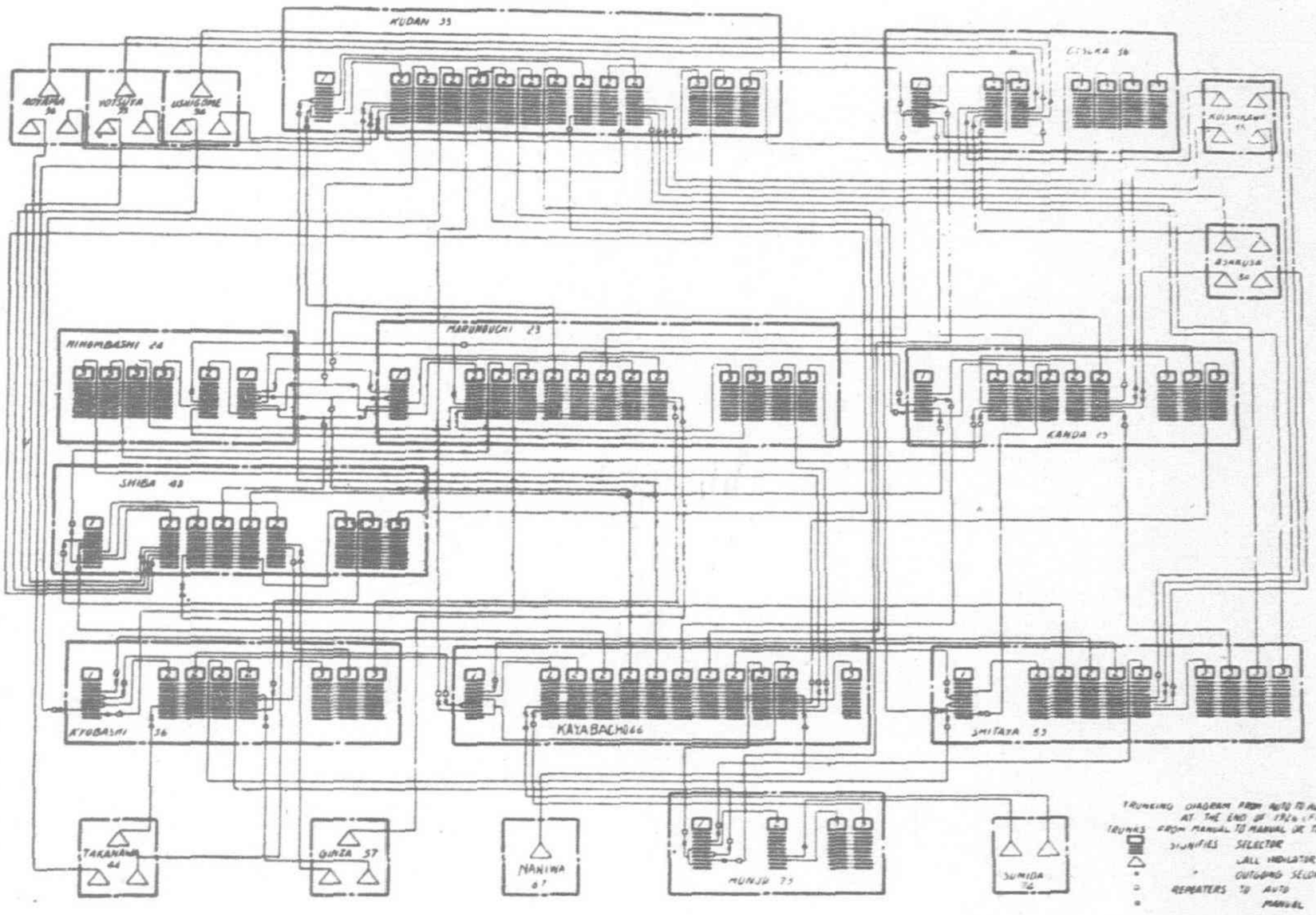
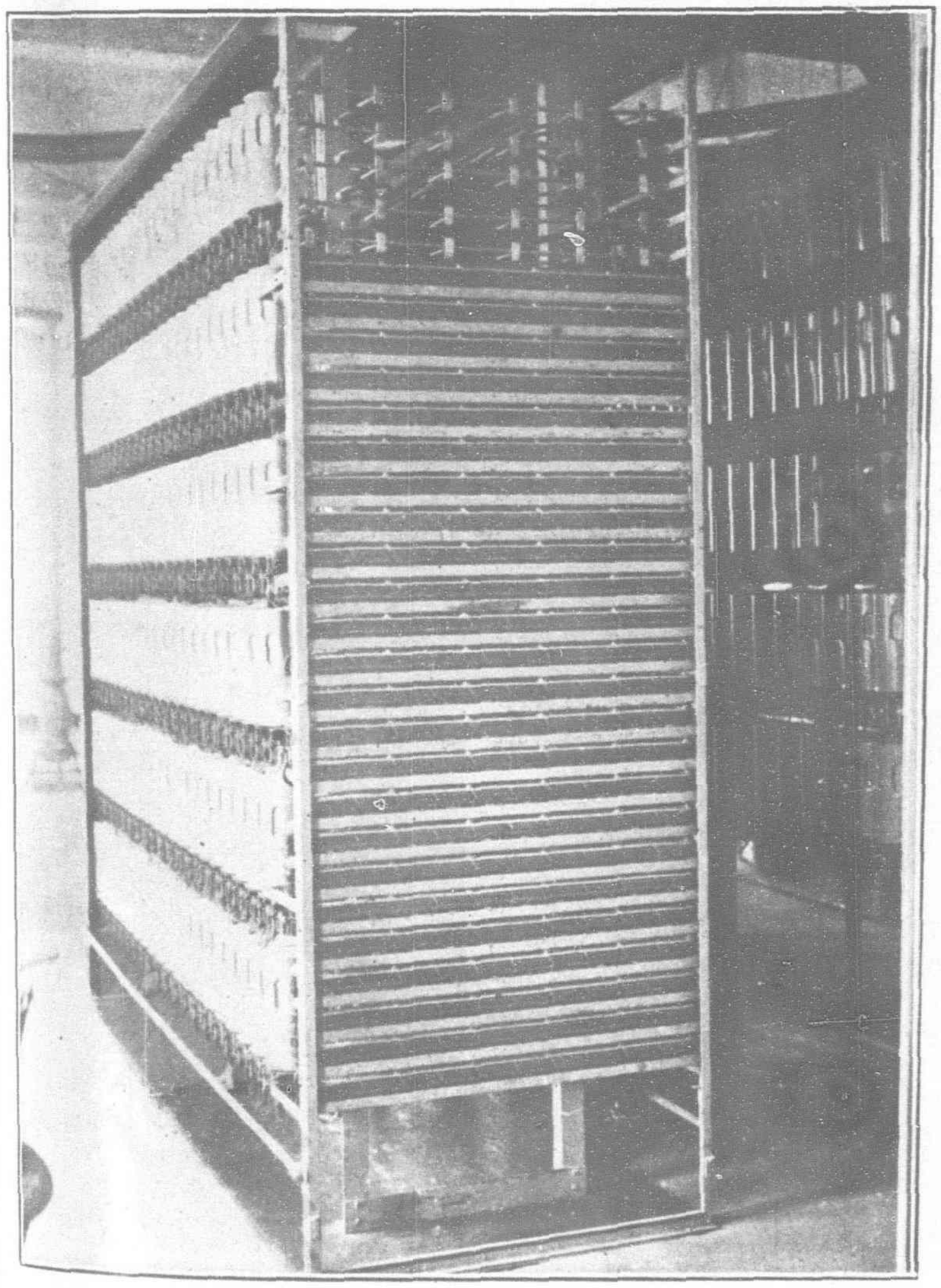
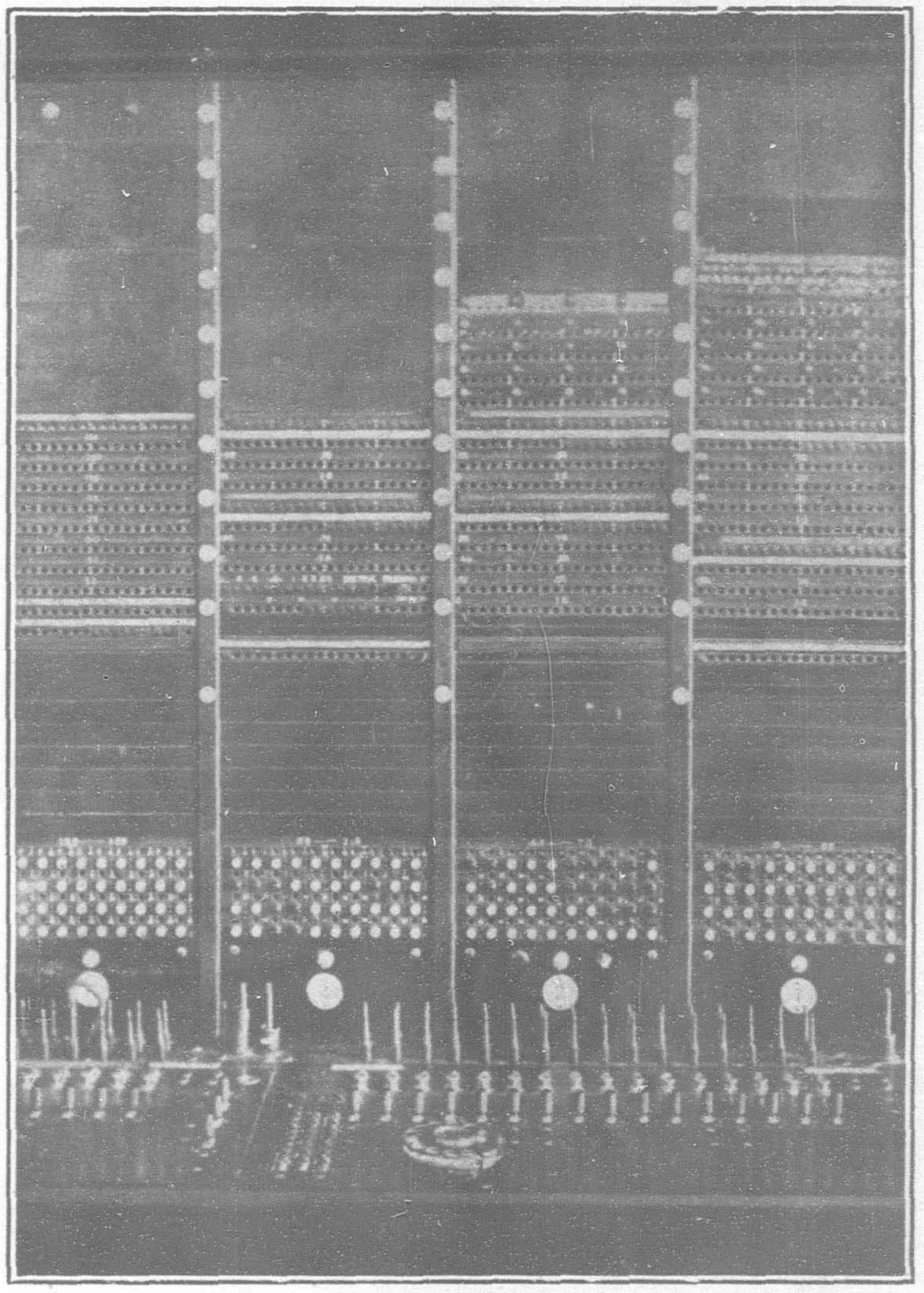


Fig. 4

The usual training methods were followed in familiarizing the manual operators with the new methods of operating involved at both the "A" positions and the call indicator positions. Several demonstration sets of automatic equipment were set up in accessible places in the automatic office areas and used as widely as possible for training the public in the use of dial stations. Individual instruction was also given the subscribers at the time the dial stations were installed.



Selector Board



A Board Dial

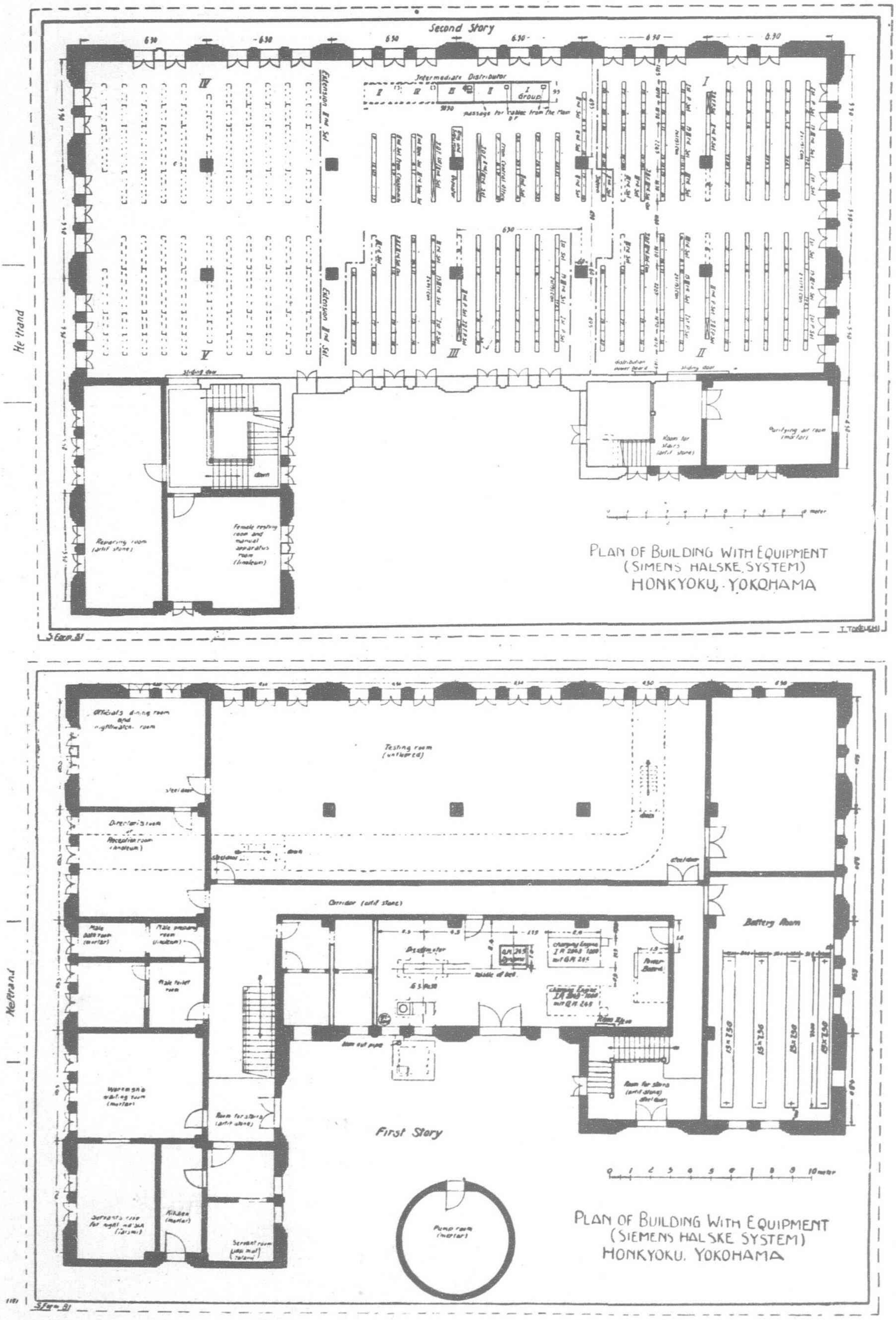

Second Story
Intermediate Distributor
Group
Extension 2nd Sel.
Sliding door
Repairing room (artif. stone)
Female resting room and manual apparatus room (linoleum)
Room for stairs (artif. stone)
Purifying air room (mortar)
PLAN OF BUILDING WITH EQUIPMENT (SIEMENS HALSKE SYSTEM) HONKYOKU, YOKOHAMA
Officials dining room and night watch room
Testing room (unfurnished)
Director's room or Reception room (linoleum)
Male toilet room
Corridor (artif. stone)
Battery Room
Room for stairs (artif. stone)
First Story
Pump room (mortar)
PLAN OF BUILDING WITH EQUIPMENT (SIEMENS HALSKE SYSTEM) HONKYOKU, YOKOHAMA

FIG. 5

In order to avoid the confusion and resultant reaction on the service incident to cutting over large numbers of subscribers from manual to the new automatic equipment, it was decided to first connect to the automatic equipment only subscribers to whom it had until that time been impossible to restore service. The automatic offices were opened, serving from 1,200 to 400 such subscribers. As soon as feasible, after the offices were opened, subscribers were transferred from manual to automatic offices in order to relieve the overloaded condition in the former.

The installation of all of the call indicator and "A" board dialling equipment, the automatic equipment in the first two offices started, and the tandem switches at other centers required for their operation, was completed and the two automatic offices Kyobashi and Honjyo placed in service in January of this year. The remaining three offices Shitaya, Kanda and Kayabacho were cut into service in March.

Second Stage of Automatic Office Installation

Engineering work for the job of the Second Stage was done on the following traffic data estimated taking normal growth and margin into account, for the end of the fiscal year 1926 and the others, which are omitted here:

Main Traffic Data for the Second Stage Job (at the End of the Fiscal Year 1926)

Table II.

Districts	Outward	No. of Lines	B.H.C per Lines Inward	(Marunouchi)	(Nihonbashi)	(Kanda)	(Kudan)	Ushigome	Yotsuya	Awoyama	(Shiba)	Takanawa	(Kyobashi)	Ginza	(Kayabacho)	Naniwa	(Honjyo)	Sumida	(Shitaya)	Asakusa	Koishikawa	(Otsuka)	Total	Ote
	(Marunouchi)	3,800	4.07	3,420	1,780	640	540	370	765	750	500	760	2,020	2,050	755	815	735	300	510	390	(640) 465	175	(17,915) 17,740	1,320
2	(Nihonbashi)	4,300	2.15	1,140	1,640	530	285	220 (620)	340 (590)	275	310	410 (285)	1,350	720	580	1,440	520	260	440	490	(370) 265	105	(11,425) 11,320	
	(Kanda)	4,500	1.45	765	640	1,580	365	180 (620)	350	225	155	190 (380)	545	390	240	755	420	200	460	370	(420) 305	115	(9,140) 8,250	935
	(Kudan)	4,150	0.95	625	435	435 (565)	620 (680)	280 (4,600)	585 (1,720)	380 (820)	170 (400)	210 (1,150)	410 (1,610)	460 (1,320)	250 (615)	285 (705)	200 (640)	80 (175)	300 (540)	185 (310)	(370) 265 (960)	105	(6,895) 6,280	405
3	Ushigome	5,200	1.03	580	460	240 (680)	345	1,260 (1,570)	460 (2,235)	255 (603)	140	200 (585)	340 (667)	340 (640)	215 (404)	300 (410)	145 (351)	70 (130)	240 (500)	160 (280)	390 (670)	200	(18,050) 6,340	1,510
	Yotsuya	4,000	1.05	575	380	410	595	440 (925)	980 (835)	390	150	185 (870)	420	335	250	220	235	80	320	160	335 (300)	125	(11,545) 6,565	640
	Awoyama	8,100	1.10	760	515	270	430	280 (430)	510	2,900	475	510	560	720	225	340	255	80	340	165	220 (245)	80	(11,045) 9,635	850
4	(Shiba)	3,000	1.45	600	370	260 (395)	210 (430)	195 (1,270)	235 (767)	480 (934)	800	560 (2,768)	550 (1,044)	750 (1,264)	315 (486)	315 (598)	220 (441)	80 (183)	200 (373)	140 (395)	180 (410)	65	(6,825) 6,252	645
	Takanawa	5,400	1.15	740	480	220	220	170 (1,300)	265 (720)	645	500	1,480 (1,015)	710	780	275	380	310	140	255	335	180 (490)	70	(13,528) 8,155	820
5	(Kyobashi)	7,050	2.00	1,480	1,520	560	390	280 (1,610)	440 (855)	510	470	700 (1,373)	3,840	1,650	870	920	900	370	470	440	355 (485)	135	(18,050) 16,300	2,000
	Ginza	5,100	2.47	1,940	1,070	510	530	380 (670)	510 (552)	715	950	730 (461)	1,830	3,500	590	615	525	240	460	350	355 (450)	130	(18,278) 15,930	2,000
6	(Kayabacho)	3,500	3,10	820	945	330	325	180 (800)	325 (546)	375	295	240 (487)	1,060	540	2,750	1,430	685	235	440	410	325 (475)	125	(12,898) 11,835	1,180
	Naniwa	7,100	1.85	920	1,410	710	310	260 (590)	325 (290)	360	270	295 (307)	845	590	1,130	3,760	990	475	760	720	345 (315)	130	(15,688) 14,605	1,560
7	(Honjyo)	5,800	1.40	635	720	355	120	120 (245)	220 (230)	170	155	200 (223)	830	420	630	940	3,200	585	440	480	225 (220)	90	(11,272) 10,535	905
	Sumida	3.500	1.33	340	385	200	100	80 (585)	185 (444)	170	140	135 (282)	400	235	215	545	620	1,040	305	460	160 (665)	60	(6,133) 5,775	485
	(Shitaya)	6,700	0.92	535	520	500	230	215 (330)	285 (395)	200	160	105 (363)	520	460	490	780	350	240	1,170	765	480 (400)	185	(9,081) 8,250	705
8	Asakusa	6,800	1.05	450 (770)	540 (690)	350 (440)	225 (500)	135 (1,080)	230 (1,004)	170 (440)	175 (315)	240 (474)	540 (595)	410 (555)	400 (460)	920 (760)	420 (340)	380 (170)	780 (720)	2,490 (375)	295 (2,400)	150	(9,888) 9,300	660
	Koishikawa	8,000	1.06	560	500	320	370	340	480	320	230	175	530	495	335	550	250	125	520	270	1,850	230	(12,318) 8,360	970
	(Otsuka)	2,000	1.00	210	190	120	130	230	180	120	85	65	165	150	125	210	90	45	200	155	250	330	3,050	
	Total	96,000	1.56	(17,305) 17,095	(14,690) 14,500	(9,430) 8,540	(7,015) 6,340	(18,065) 5,615	(13,288) 7,670	(10,595) 9,390	(6,475) 6,130	(12,813) 7,450	(19,381) 17,465	(16,824) 14,905	(11,530) 10,640	(16,523) 15,520	(11,902) 11,070	(5,268) 5,025	(9,408) 8,610	(9,370) 8,935	(10,535) 7,245	2,605	(223,024) 184,750	21,270
	Grouping Factors			0.90	0.90	0.80	0.75	0.75	0.75	0.75	0.80	0.80	0.90	0.90	0.85	0.85	0.85	0.80	0.80	0.75	0.80	0.75		0.80
	Ote	5,200	2.57	850		780	550	940	740	685	540	780	2,250	1,850	890	1,510	840	370	630	590	675		18,850	

Remarks :—

1. Offices in Brackets denote Automatic Ones.
2. Figures in Brackets denote that on which designed, according to Cutovers are not to be effected at one time.
3. Ote is to be replaced by Marunouchi and Nihombashi.

Two of the three new buildings required for the Second Stage (Shiba and Otsuka) are of the same design as those for the First Stage and each provide capacity for one full unit of automatic equipment. The Marunouchi Central Office Building also followed the same general design as that for the First Stage offices. It is, however, four stories high instead of two, and of sufficient length (approximately 250-ft.) to provide space for ultimately housing two automatic units, the Tokyo toll switchboard and the associated equipment necessary for the centralized special services. The width of the switch rooms and the dimensions for column centers have, however, been kept the same for this building as for the other offices.

The charging circuits and equipment for the Second Stage offices were engineered in approximate accordance with the standards used by the Bell system in America. Two sets of batteries will be provided, but their capacity will be such as to carry the office for busiest four hours respectively instead of each set having twenty-four hours capacity. Emergency cells will be provided and arranged so that, in an emergency they can be placed in series with the main batteries, and advantage was taken of the full reserve capacity of the cells without lowering the voltage below the operating limits of the equipment. The power wiring and control apparatus will be so arranged that the Central Office lead may be supplied directly from the charging generators with either one set of batteries floating; also to permit either set of batteries to be charged while the other is in service.

It is expected that the new Second Stage buildings will be ready in June and July, 1926, and equipment will be at hand so that the installation can start at that time. The units are scheduled for completion in time to permit all offices to be placed in service before the end of March, 1927. At that time the Tokyo exchange will have capacity for slightly less than 100,000 lines, of which approximately one-half will be served by automatic central offices equipment.

Reconstruction in Yokohama

Two new automatic offices in Yokohama were opened in March 1926: being cut over 4,500 stations from a temporary manual office and resuming service for all suspended stations, local service was perfectly restored with the capacity of 10,600 stations.

Permanent reconstruction of the toll office with common battery system is postponed, as the office building has not yet been accomplished owing to determination of boundary of site had been delayed in accordance with the city's reconstruction plan.

NUMBERING SCHEME:

As is expected it to be far future that Yokohama will have more offices than eight, five digit system was adapted: One for office number, i.e. 2 for Honkyoku and 3 for Chojyamachi, and four digits for subscribers number.

EQUIPMENT FEATURE:

Secondary line switches were used between primary line switches and first selectors, so that selective range of primary line switches was increased. On secondary line switchboards were equipped special relay groups "Abschaltung" which serves to give busy back tone to calling subscriber when no idle trunk was found between primary line switches and first selectors.

All incoming trunks were terminated at secondary selectors and repeaters were used for all out-trunks. Special grading was adopted at terminals of intermediate distributing frames installed between switch boards, in order to secure high trunk efficiency.

Intercepting and test desks were provided in each central, although the special centralization was adopted in the case of information and toll recording in toll office.

Power plants have duplicate sets of batteries and charging sets battery having capacity 2,400 a.h. and 2,000 a.h. for Honkyoku and Chojyamachi respectively. One of charging sets is a motor generator, driven by street main and the other by a Diesel engine which is for emergency use.

Fig. 6.—Floor Plan for Switch Room (second floor) Otsuka Strowser System

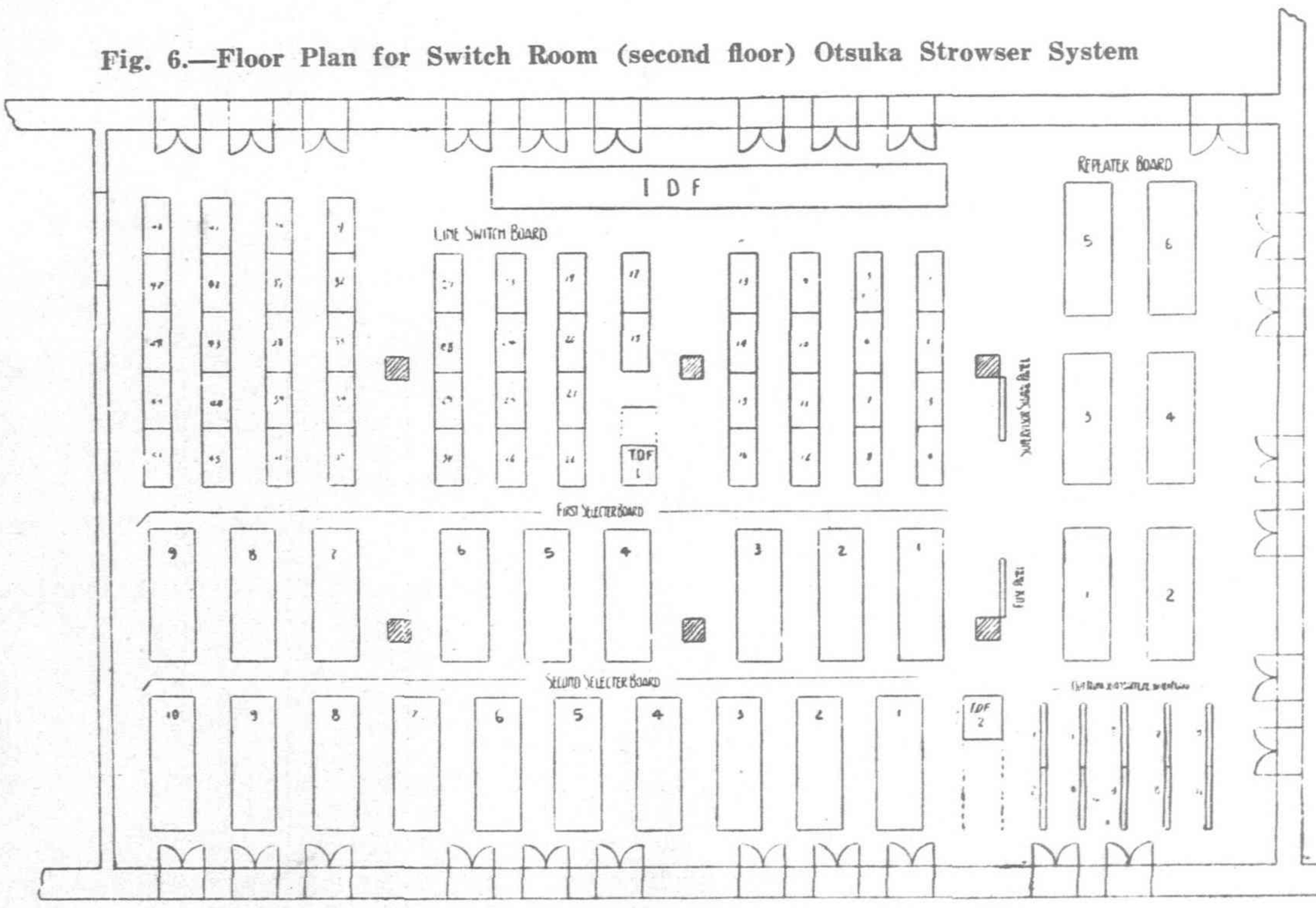
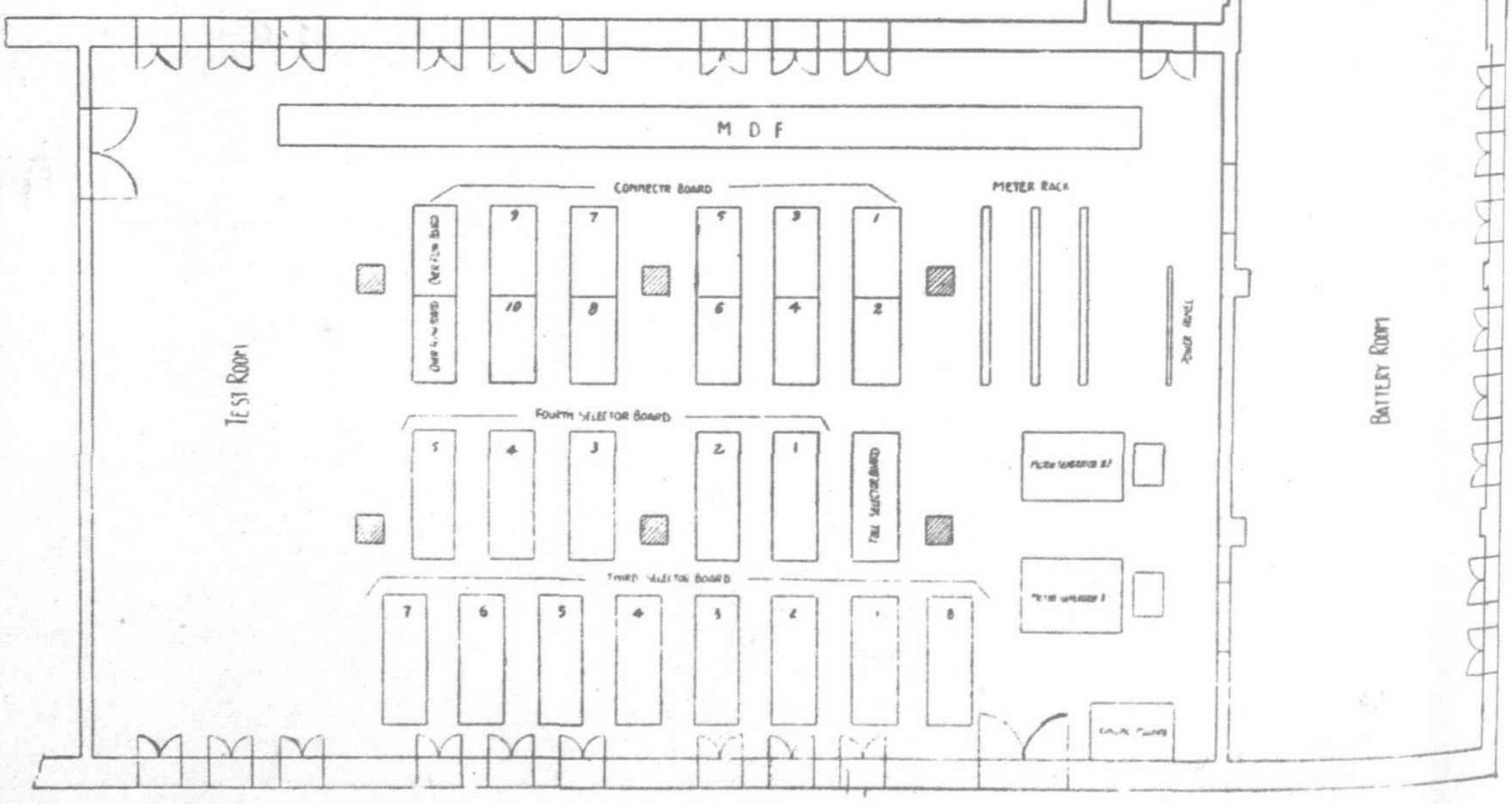


Fig. 6.—Floor Plan for Switch Room (ground floor) Otsuka Strowser System.



BUILDINGS :

It may be said that construction of office building is quite the same as that of Tokyo generally with only the difference that emergency illuminating circuit is fed from 60v. main battery here instead of 50v. in Tokyo. Plans of building is given in Fig. No. 6.

INSTALLATION AND CUTOVERS :

Commencing installation of office equipment on July 1. 1925 for Honkyoku and Chojyamachi respectively, were both opened on March 25, 1926 with total capacity 10.600 stations, sharing approximately one half load each.

Equipment is engineered on the following main traffic data :

TABLE III.

Main Traffic Data for Reconstruction Job Yokohama

Outward	No. of Lines	B.H.C. per Line Inward	Honkyoku
Honkyoku	5.224	1.63	6.620
Chojyamachi ..	5.216	0.75	2.000
Total	10.440	1.20	8.620

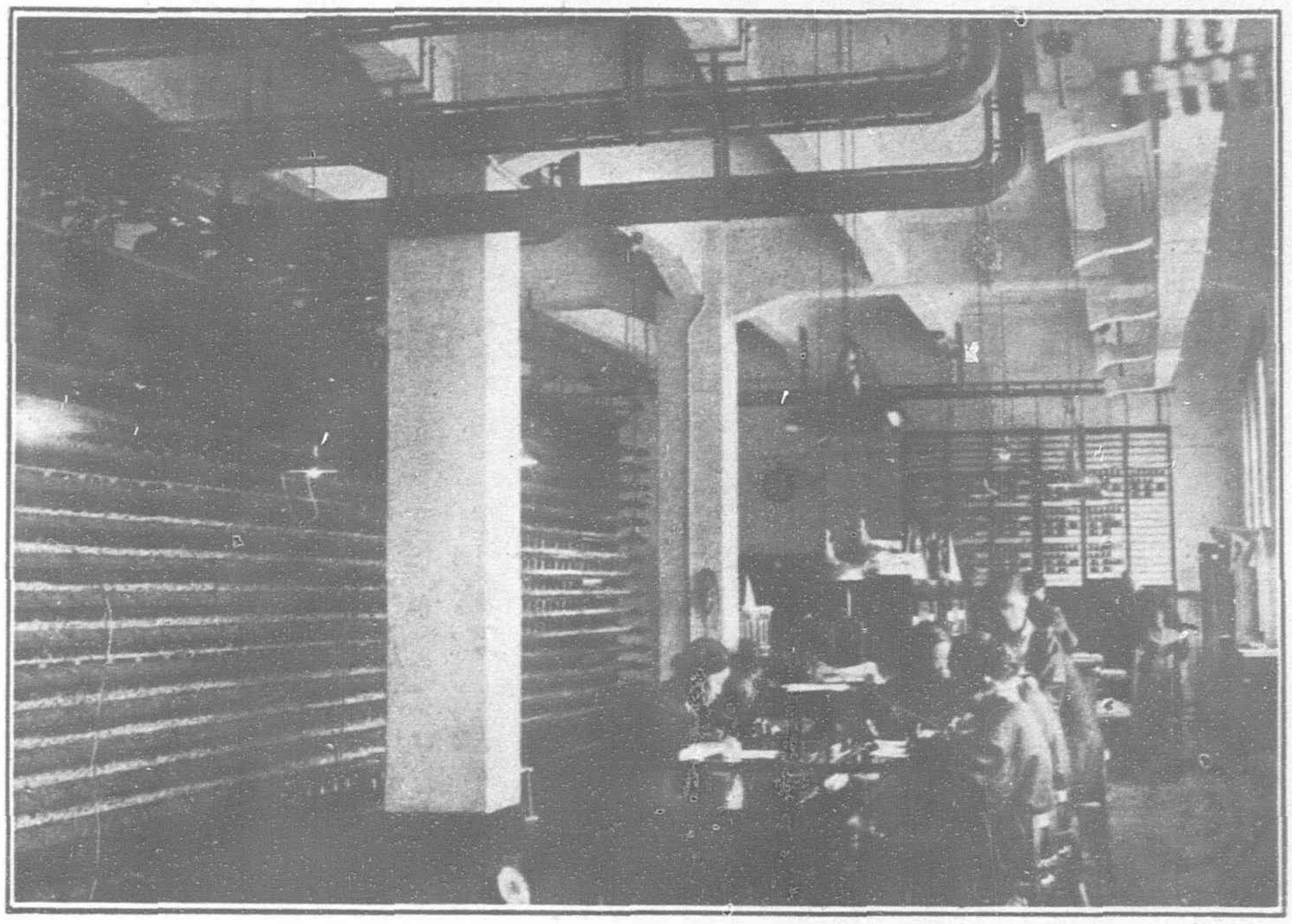
	Chojyamachi	Total
	2.000	8.620
	1.912	3.912
Total	3.912	12.532

As for training the public in the use of dial stations may the same be said as Tokyo.

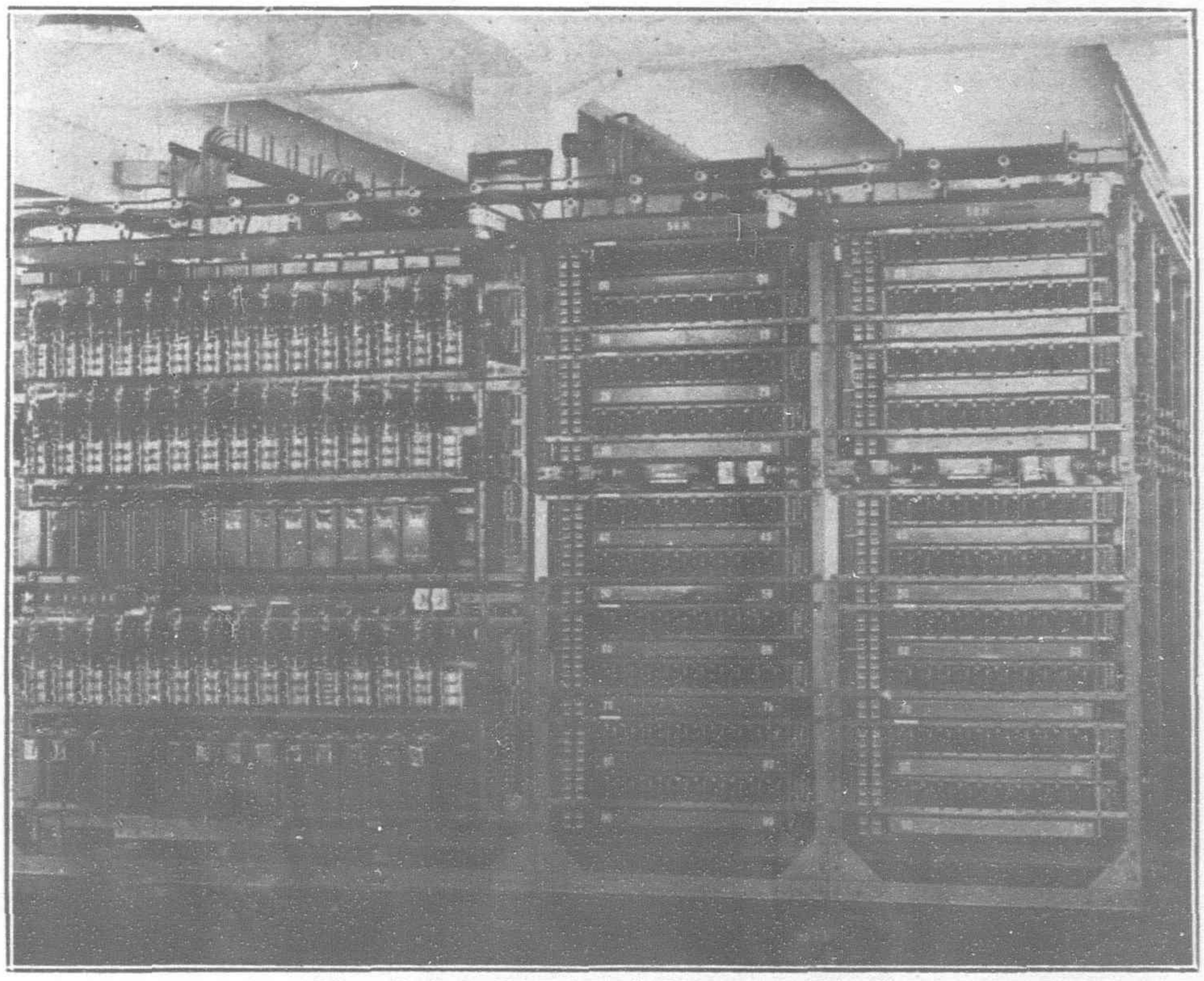
Conclusion

From the above description it is seen that the reconstruction project for Tokyo and Yokohama is not remarkable because of novel engineering methods, service practices, or equipment arrangements. It is, however, remarkable because of the magnitude and difficulty of the work undertaken on an emergency basis. The amount of plant destroyed by the earthquake and fire far excelled that lost in any other disaster in the history of the telephone business and most of the replacing equipment had to be secured from factories thousands of miles distant.

The successful co-ordination of the efforts of the Department of Communications of the Japanese Government and the factories in Asia, Europe and America, is a proof that the telephone industry's ideal of "Service First" is an international standard.



Test Room of the Yokohama Automatic System



Line Switch Board and Connector Board

A New Easy Cutting Die Stock for the Larger Sizes of Pipe

A NEW easy cutting pipe threader for the larger sizes known as No. 44 Receder has just been placed on the market by the Oster Manufacturing Company of Cleveland, Ohio.

The tool gets its easy cutting qualities from its narrow dies which are ground with an extra long lead and sharp rake. To further increase the ease of cutting, the tool is geared and is furnished with a ratchet handle so that one man can cut 4-in. pipe without hard work.

A massive leader screw protected by a patented chip shield starts the dies on the pipe and pulls them along, producing the proper pitch and taper. The leader screw, which is of great importance to a tool of this type, is kept free from dirt and chips by the patented shield. Thus the leader screw is not subjected to any undue wear caused by chips and its life is materially lengthened.

Realizing the importance of adjustability when the occasion arises. The Oster Company has made it possible to cut over and undersize threads as well as standard, with this tool. A simple rotary movement of the die head adjusts the dies to cut either deep or shallow threads.

A lever-operated, self-centering chuck takes the place of, and eliminates the bother of, changing pipe bushings for each size of pipe. The chuck insures a straight, true thread on all sizes from 2½ to 4-in., the range of the tool.

The threading of short nipples is possible, as the bore of the stock is large enough to accommodate even a 4-in. coupling.

Shanghai-Nanking Line

THE Shanghai-Nanking Railway is a line which brings into communication several important and populous Towns and Cities of Kiangsu Province, and forms one of the links—it may be said the first link—in the railway chain connecting the old with the new world by way of the great Trans-Siberian route.

Woosung Branch

The branch line from Shanghai to Woosung, 16 kilometres in length, has the distinction of being the first railway to be built in China. It was opened as a narrow gauge line so long ago as 1876, and ran successfully for some months, until native opposition proved too strong, and to avoid trouble it had to be closed. It was reopened later, on the understanding that the Government would take it over from the proprietors, but immediately the purchase was completed the line was abandoned, all the materials were taken up, and, together with the engines and rolling-stock, shipped to Formosa.

Main Line

The present Railway between these two places is of standard gauge, and was completed in 1898.

With regard to the main line from Shanghai to Nanking, a preliminary agreement for the acquisition of a loan for the construction of the railway was signed on May 13, 1898 in Shanghai by His Excellency Sheng Kung-pao (then Sheng Hsuan-huai), the Director-General of the Imperial Chinese Railway Administration, and Messrs. Jardine, Matheson & Company, and the Hongkong and Shanghai Banking Corporation, as Joint Agents representing the British and Chinese Corporation.

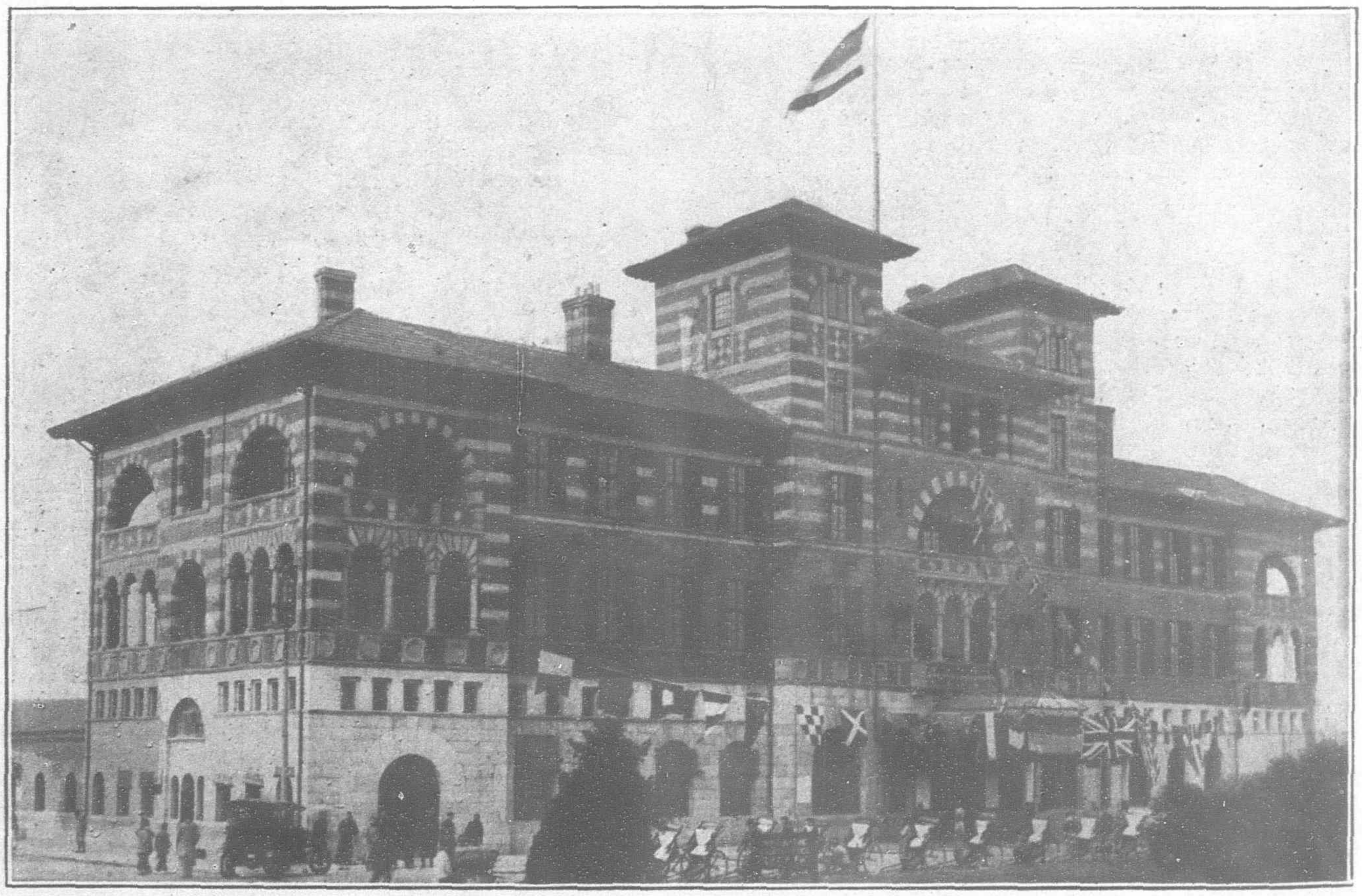
Four-and-a-half years elapsed before an Imperial Decree was issued, under the authority of which a final Agreement was executed by the parties named on the 9th day of July, 1903. This document provided for the issue of a sterling loan for an amount not exceeding £3,250,000 secured by Imperial Chinese Bonds, with the railway as first mortgage security. The price agreed upon for the loan was ninety per centum of the nominal value of the bonds, which bear interest at the rate of five per cent. per annum on their nominal value. The duration of the loan was fixed at 50 years, commencing from the date of the ratification of the Agreement, but provisions are included under certain conditions for the redemption of the loan after 12½ years, and at par after 25 years.

The amount of the loan was based on the preliminary surveys and estimates which had been prepared by the Consulting Engineers, the late Sir John Wolfe Barry, the late Mr. Gabriel James Morrison, and Mr. A. J. Barry, M. Inst. C.E. It included provision for payment of interest out of Capital during construction, Taels, 1,000,000 representing the agreed purchase price of the existing Shanghai-Woosung Line, and the sum of 250,000 for the acquisition of land by the Chinese Administration for a double line of railway for the whole distance, and for the construction and equipment, as economically as possible, in accordance with the best modern system, of the line of railway from Shanghai to Nanking.

In the meantime, a staff of Engineers had been engaged in England and the Summer of 1904 saw the permanent surveys and estimates completed, constructional work being commenced in the following Autumn.

Considerable delays were experienced in the initial stages, particularly in the acquisition of the necessary lands, but matters in this respect improved in the Spring of 1905, and on April 25 of that year the ceremony of cutting the first sod was performed by H.E. Sheng Hsuan-huai at Shanghai. In place of the then existing swamp there now stands a commodious station with extensive sidings, warehouses, and other accommodation, the main building being of handsome architectural design.

Work on the section of line from Shanghai to Wusih, a distance of 128 kilometres, was first taken in hand together with some of the heavier work on the Chinkiang-Nanking section, including the tunnel at and the deep cuttings in the vicinity of Chinkiang.



The Head Office and North Station in Shanghai

Where the Shanghai-Nanking and Shanghai-Hangchow-Ningpo Railways Meet

The preparatory examination of the country had revealed the fact that to avoid interference with the almost countless graves and houses would absolutely ruin the general alignment, and consequently render nugatory all ultimate prospects of economical operation and fast running. It was wisely decided, therefore, to lay out the longest straights possible, not only for the sake of directness but also with a view to reducing first cost of construction and future cost of maintenance and operation ; but slight deviations were made at certain places to avoid interference with Ancestral Halls, Tombs and Monuments.

Gradients and Curves

The benefit of such a policy will be readily conceived when it is stated that the ruling gradient is 1 in 200 of which, however, there is only 9 kilometres, and no fewer than 206 kilometres of the line are easier than 1 in 1,000. Of curves there are 59 between Shanghai and Nanking, with an aggregate length of 32 kilometres only. The sharpest curves are 3 deg. but there are only two of these, totalling 1,275 metres in length.

From Shanghai to Tanyang, a distance of 212 kilometres, the line crosses highly cultivated land of the Yangtse Valley, intersected with innumerable canals and creeks, and no other part of China, perhaps, is it possible to obtain a better conception of the agricultural resources of the vast republic. After leaving the latter city, the contour changes, and the line traverses an undulating and rising country until it reaches a ridge or water shed at kilometre 234, whence it descends on easy gradients, through heavy cuttings and a tunnel through the fort Hill to Chinkiang.

From Chinkiang the alignment follows the foot of the hills as far as Lungtan, thus avoiding the outer country which is subject to periodical inundations.

The terminus at Nanking, a distance of 312 kilometres from Shanghai, is on the south bank of the Yangtse River. The site prior to the advent of the railway was low swampy ground subject to annual inundations, and a great deal of filling had to be done.

Bridges and Culverts

Quite a feature of the line from an engineering point of view is the number of bridges and culverts which were rendered necessary by the numerous waterways which had to be crossed. There are no fewer than 303 bridges and 405 culverts between Shanghai and Nanking.

Tunnel at Chinkiang

The only tunnel on the Railway is situated at Chinkiang. The length from face to face is 402 metres, and provision was made for the laying of a double line of rails.

Endeavors were made to avoid a tunnel altogether, but it was proved conclusively that it was quite impossible otherwise to approach the city of Chinkiang except on a back shunt, the additional cost of which would more than have exceeded the cost of the tunnel apart from other more permanent objections.

It is worthy of record that the whole of the excavation and brickwork in the tunnel was carried out by Chinese labor, under European supervision, and during the construction not one single fatal accident occurred, this, we believe, being quite an exception in tunnel work, even where trained workmen are available.

Earthworks

Earthworks generally, presented little difficulty, except at kilometres 96 where the embankment had to be laid across a marsh continually under water, and at Nanking, as previously mentioned.

Permanent Way

Permanent way consists of 85-lb. flat footed steel rails 36-ft. long. The main line sleepers are of Jarrah 9-ft. by 10-in. by 5-in. spaced 14 to a 36-ft. rail. The sleepers of sidings are of the same wood, 8-ft. 9-in. by 9-in. by 5-in. spaced at 3-ft. centres.

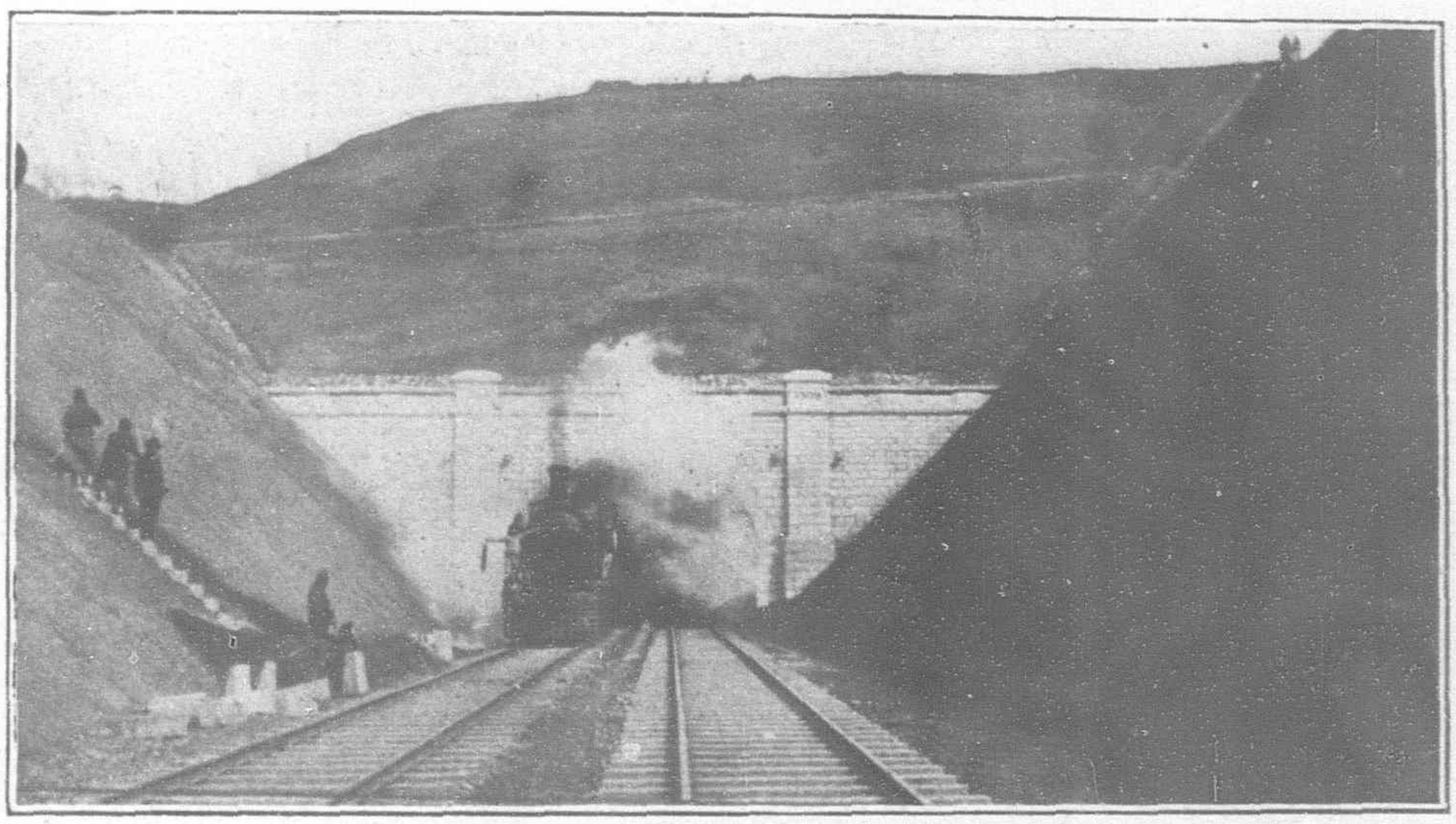
Ballast

The line is ballasted throughout with bottom ballast of stones of 12-in. by 6-in. by 8-in. hand packed ; the top ballast consisting of stones broken to pass a 2-in. ring.

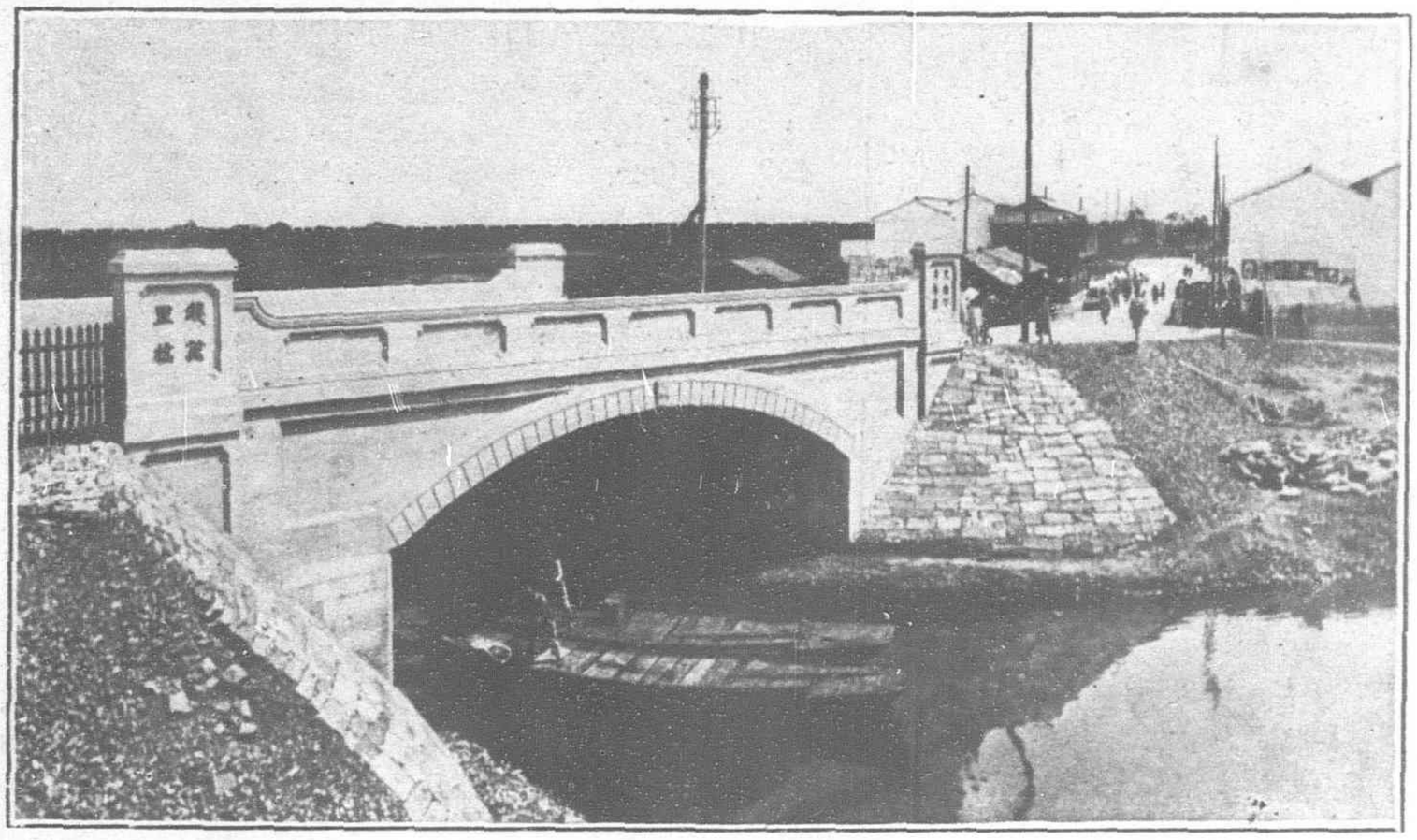
Telegraphs

By agreement with the Imperial Chinese Telegraph Administration the main line of posts and wires to Nanking was constructed by that Administration in the latter part of the year 1905 and early in 1906, the railway paying a proportionate cost of the total according to the number of wires. Five years later, however, the Railway erected a separate line of posts for their own wires.

The telegraph instruments used are open-circuit Morse inkwriters P.O. galvanometers, 4-line lightning conductors, and 4-line commutators, the batteries being Leclanche.



The Tunnel at Chinkiang



The Bridge at Soochow

Constructional Materials

To obtain suitable materials for the construction of the railway was a difficult task. As much as possible was obtained locally, though this was chiefly confined to earth, sand, stone, granite and bricks. In carrying out the work every possible effort was made to standardise details and working parts.

Construction of the railway was carried out departmentally, under the supervision of an Executive Engineer, with Assistant Engineers in charge of sub-divisions. The greater part of the work was let to Chinese contractors at scheduled rates, and the erection of the bridges was carried out entirely by Chinese labor under European supervision.

Locomotive and Carriage Shops

The locomotive erecting and carriage building workshops are situated at Woosung, about eight miles from Shanghai, on the left bank of the Whangpoo River, where the Railway possesses extensive water frontage.

The erecting shop has four lines of pits, and one through road for materials. Adjoining this are the machine, smith, and boiler shops, the power house and the boiler house. The machine shop is equipped with modern machinery electrically driven. The foundry has an area of 3,200 sq. ft. In addition there is a saw-mill, a carriage repair and a paint shop, carriage building shop and the usual stores. Two 20-ton electrically-driven cranes traverse the entire length of the erecting boiler and machine shops, and an 18-ton travelling crane is provided in the carriage repair shop. The offices of the Locomotive Superintendent and his staff, and a well fitted Laboratory, adjoin the shops.

Stations and Facilities

There are six passenger stations on the Woosung branch line. Ample warehouse accommodation and facilities have been provided at Woosung on the river front adjoining the Railway workshops for dealing with ocean shipment cargo. Between Shanghai and Nanking there are 42 stations, of which 30 are crossing stations, and a brief description of the principal ones follows :

The station at Shanghai-North is one of some pretensions. There is a spacious booking hall, refreshment and waiting rooms, and extensive offices in which is conducted the administration, and management of the railway. Perhaps one of the first things to strike the observant passenger is the extent of the covered circulating area, which is much appreciated by the Chinese passengers. The station was enlarged and remodelled in December, 1916, to provide for the advent of the Shanghai-Hangchow-Ningpo Railway trains.

Woosung line trains are accommodated on the east side of the station, where separate booking offices and waiting rooms, with a platform having direct access to the roadway, have been provided.

There are five main line platforms. Four of these form bays, with middle roads for the release of engines. The fifth has a through road to the Woosung branch.

Fourth Class or Coolie passengers are kept separate from the other classes as far as possible, and the booking offices for these are situated on the west side of the main station adjoining, but quite distinct from the baggage offices. The simplest design possible was adopted for the baggage offices, as indeed, for all the arrangements for the comfort and convenience of passengers.

Shanghai-North Main Line signal box is situated a short distance away from the ends of the platforms, and contains the electric staff instruments and the levers for operating signals controlling Shanghai-Nanking Railway and Shanghai-Hangchow-Ningpo Railway trains. All the signals are interlocked and are electrically lighted.

Along the western side of the passenger station and adjoining the public road, is an extensive godown (warehouse), capable of accommodating 144 thirty-ton wagon loads.

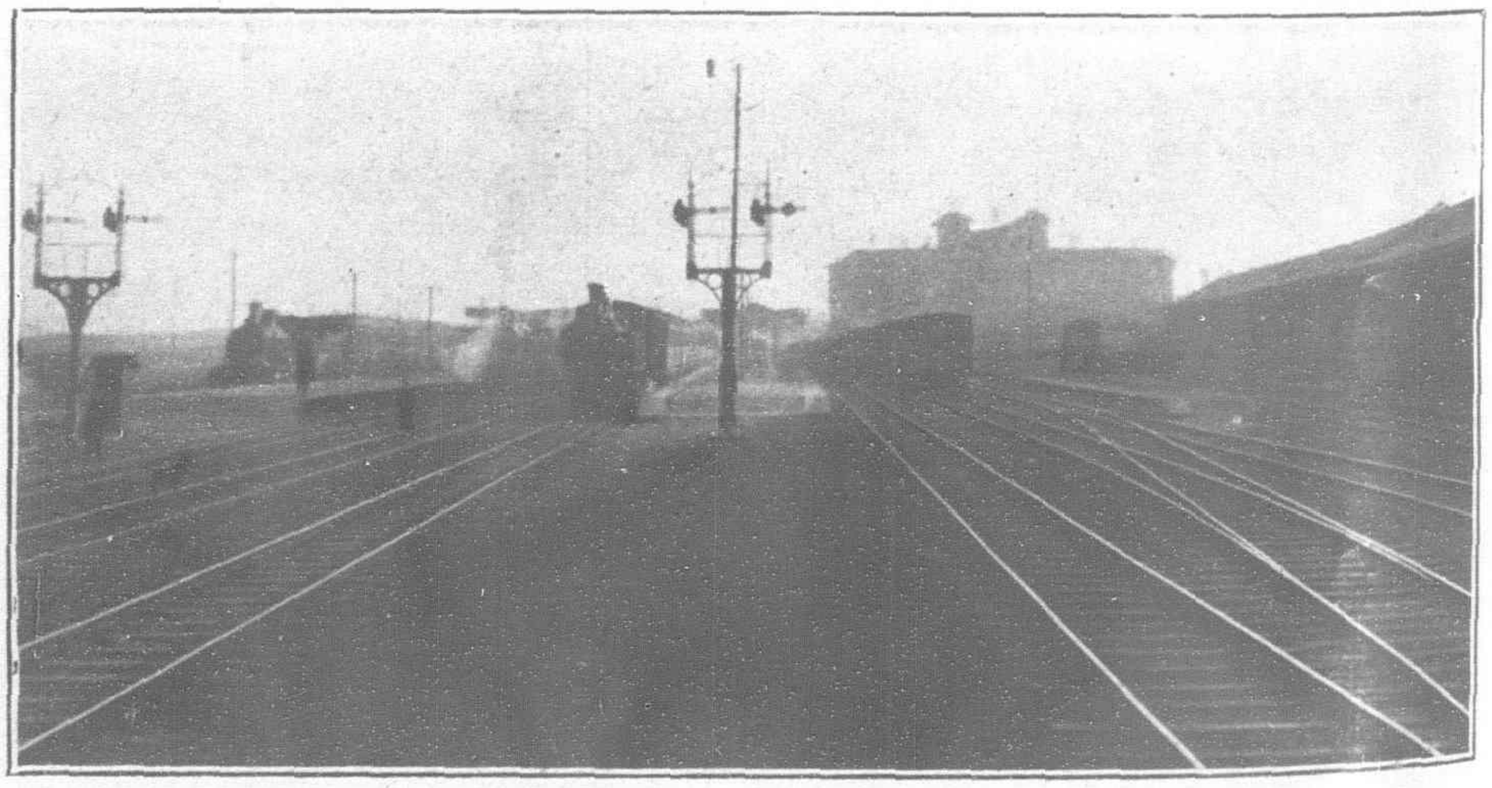
A locomotive running shed is situated on the extreme west of the station, and has accommodation for 18 main line engines. There is a machine shop attached for executing minor repairs. On the opposite side of the two main lines are four cast-iron water tanks of 10,000 gallons capacity. An additional shed on similar lines has been provided for the accommodation of Shanghai-Hangchow-Ningpo Railway engines.

Between the engine shed and the carriage shed is the electric power house, including boiler and engine house. The Penman Lancashire Boilers supply steam to two 85 K.W. compound Belliss engines running at 425 r.p.m. each, direct coupled to an E.C.C. compound wound interpole dynamo generating at a pressure of 440 to 460 volts.

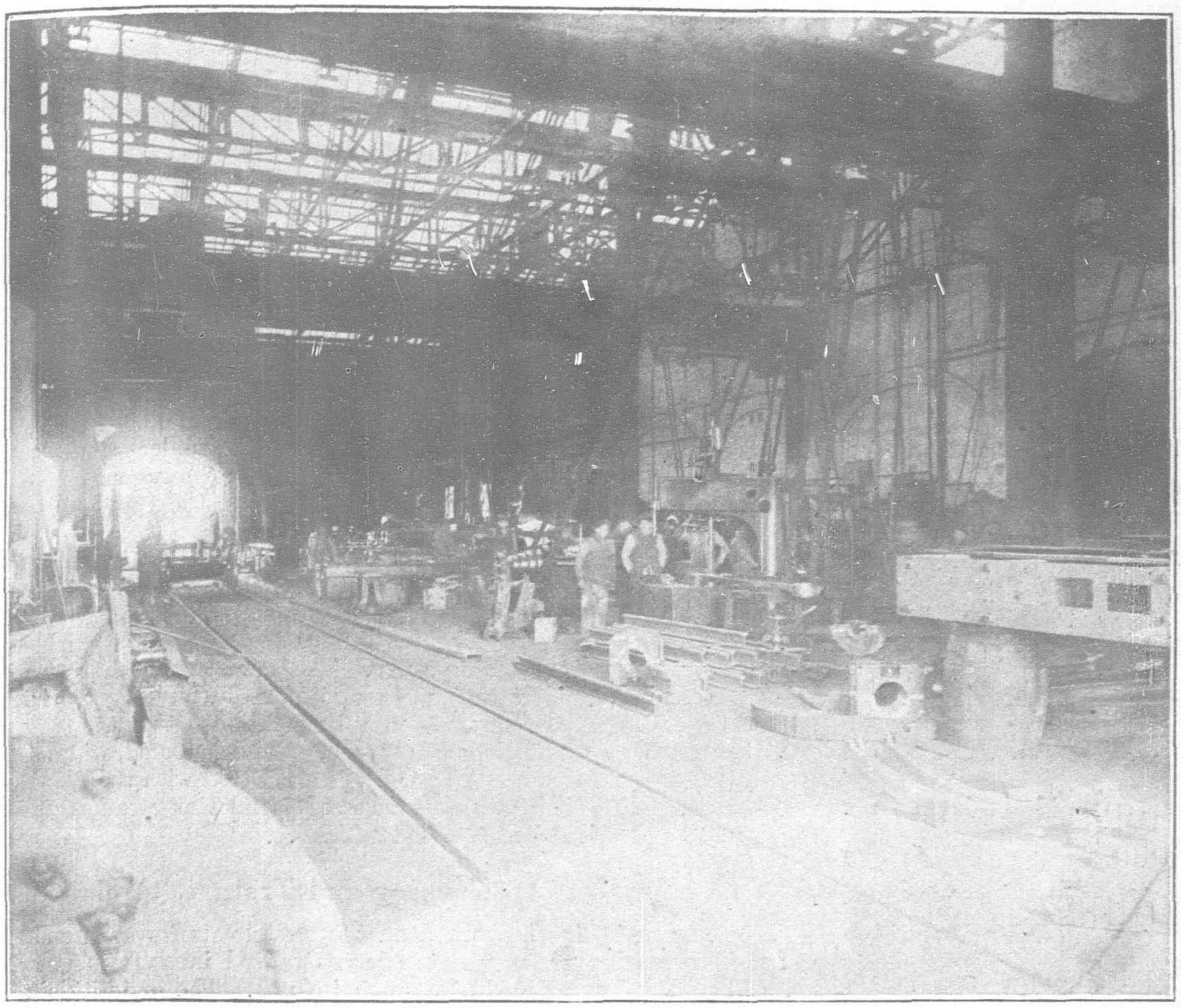
The whole of the approach roads, offices, platforms and signals at Shanghai-North and the Goods Depot at Markham Road are illuminated by electricity generated here.

Nearly 3 kilometres from Shanghai-North is Markham Road Goods station, which may be termed the rail Goods Depot for the Treaty Port of Shanghai. It is situated on the Soochow Creek which runs through the heart of the International Settlement, and has two docks alongside which are extensive godowns and sidings for dealing with the traffic of both the Shanghai-Nanking and the Shanghai-Hangchow-Ningpo Railways.

At Soochow the railway has rail access to the Grand Canal, and a fair goods traffic is dealt with. Before the 1911 Revolution, Soochow was an official centre of considerable importance.



. The Entrance to the North Station



The Woosung Locomotive Shops

Wusih has made rapid strides within the last decade. It is the centre of the great Silk Industry, the surrounding country being one immense mulberry plantation. Here the Railway has provided extensive godown and siding accommodation to cope with the general and special cocoon traffic. The latter, which is at its height in June, taxes the facilities of the railway to the utmost.

Changchow, a great trading centre, it little more than half way to Nanking. Changchow is the hub of the line in the night, and is the principal engine-changing station. There is a large engine shed with facilities for minor repairs, and the usual coaling and watering facilities. A fair goods and livestock traffic is dealt with, for which siding and godown accommodation have been provided.

Chinkiang is a Treaty Port on the Southern Bank of the Yangtze. A branch line runs from the station to the Bund. The changing condition of the river here is a matter of grave concern to the railway along with Steamship Companies, whose boats make Chinkiang a port of call on their journeys to and from Hankow. Notwithstanding the disabilities, however, a vary large traffic is handled here by the railway.

Nanking-Ferry is a goods depot and passenger station, situated on the south bank of the Yangtze River, with a large passenger pontoon, a wet dock and godowns and other requisites for the efficient handling of large quantities of goods.

It is at this station that connection is made with the Tientsin-Pukow Railway for travellers to and from the North and Europe. The ferry steamer waits at the pontoon directly adjoining the platforms, and is able to leave with passengers and baggage 15 minutes after the arrival of the Limited Express train from Shanghai. This is a vital point in the service, which brings Shanghai within 36 hours of Peking and before the War—16 days of London.

The question of the provision of a train ferry between Nanking and Pukow has been before the management for the last few years. Such a ferry would avoid the present break in the journey necessitating transhipment of goods, with consequent loss of time and leakages which now take place, and would render possible the completion of

Another View of the Woosung Shops

the journey to and from the North in the same compartment in which one started his journey from Shanghai or Peking. Whilst it is not actually impossible to construct a tunnel under, or a bridge over the Yangtse, the river bed is of such a nature that the cost would be enormous, and in the circumstances a train ferry appears to be a more satisfactory solution. Nanking (Hsiakwan) is the present terminus of the Railway. Besides a considerable passenger traffic, a large volume of goods traffic passes through the adjoining goods depot. Large Engine and Carriage sheds are conveniently situated near the terminus. A connection has been made at this station with the Nanking City Railway.

Types of Locomotives

There are several types of locomotives in use on the railway. All the locomotives are of British build. The "A" "B," and "E" classes were obtained from the North British Locomotive Company, Ltd. which Company is also responsible for two of the "C" class engines, the remainder of this class having been built by Messrs. Robert Stephenson & Company. The "F" class engines are exclusively of Messrs. Kerr Stuart & Company's build.

The "E" class engines, shipped out from England eleven years ago, are reserved for hauling the "up" and "down" Through Limited Expresses, which form connection with the services of the Northern railways. These last-named engines, which by the way are fitted with "Robinson" superheaters, are doing very good work.

The maxim of the management so far as goods traffic is concerned is "full loads, and quick despatch," and the "B" class engine meets the heavy demands which have been put upon it for dealing with this traffic.

The "C" class is a type well suited for the fast and local passenger services, and is a very capable engine. The bulk of the work of hauling the passenger trains falls on these engines.

Steam Travelling Crane

To deal with heavy lifts of general traffic, and also for use with the breakdown train, the Railway have recently acquired a steam travelling crane of a lifting capacity of 36 tons.

Coaching Stock

The coaching stock is of the four-wheeled bogie type on underframes 68-ft. long. The cars are entered at the vestibule ends, and there is through corridor communication from end to end of each train. The Janney coupler has been adopted and the Westinghouse brake, with improved triple valves, has been fitted to all cars.

The passenger rolling-stock is equipped on the "Stone" patent system of electric train lighting, and it is worthy of record that the Shanghai-Nanking Railway was the first railway in China to adopt electricity as the illuminent in the whole of its passenger stock. The trains are heated by steam from the engine in winter, and electric fans are installed in first class coaches for use in the summer. Restaurant cars are run on all express and fast trains, and the night expresses also include sleeping cars.

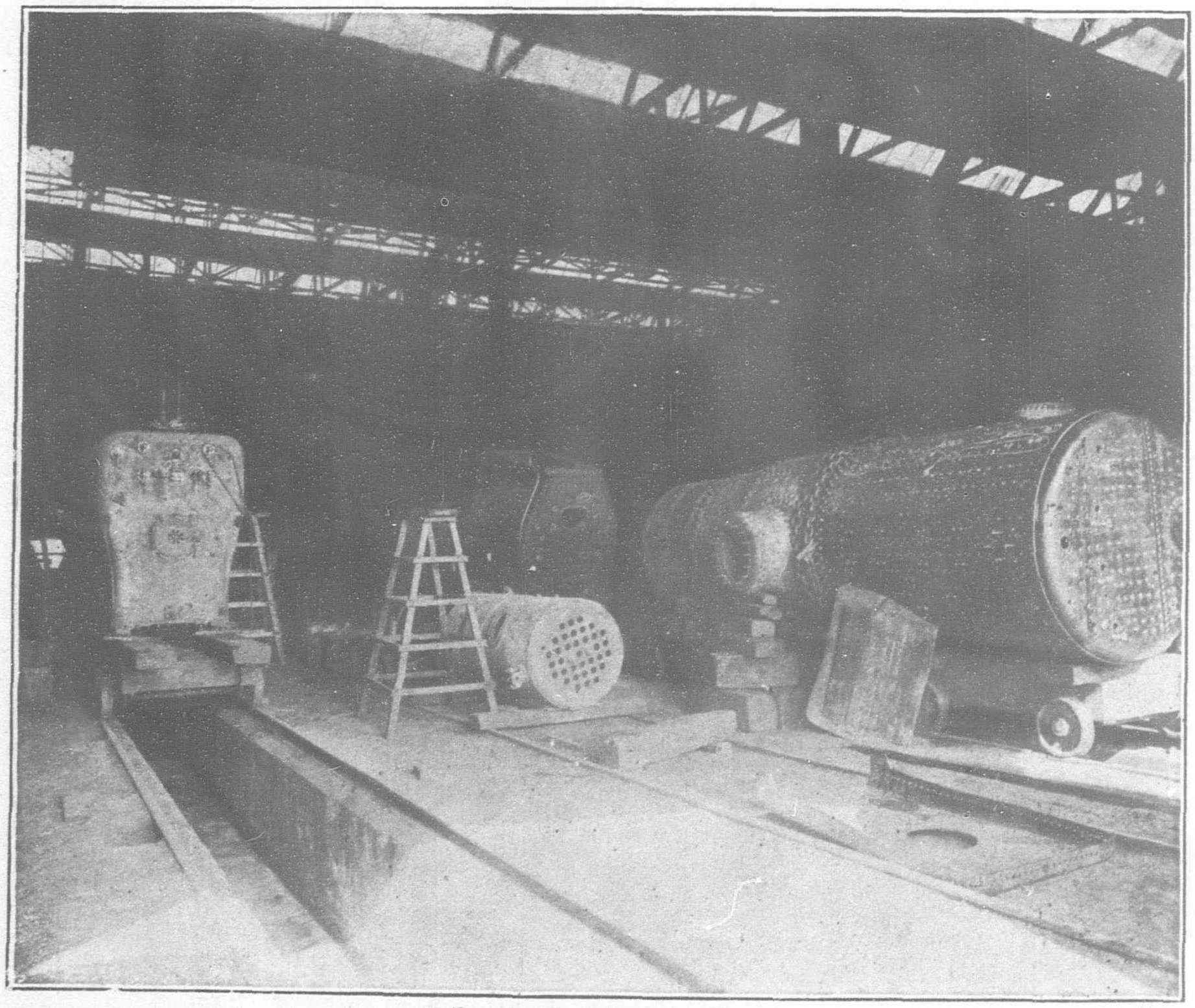
Goods Cars

Goods cars are all of large capacity, and are constructed of steel throughout. The majority consist of: (1) all-steel covered bogie vehicles on 40-ft. and 38-ft. under-frames of 40 and 30 tons capacity respectively; (2) medium-sized 4-wheeled bogie open wagons on 38-ft. under-frames, with a carrying capacity of 35 tons; (3) all-steel 4-wheel cars on 22-ft. 6-in. under-frames, 21 tons capacity; (4) all-steel bogie brake-vans on 38-ft. under-frames with covered accommodation for a load of 15 tons; (5) wagons on 38-ft. under-frames for special purposes such as livestock, and (6) tank wagons for the conveyance of oil in bulk.

The greater proportion of the goods traffic emanates from the districts served by the Tientsin-Pukow Railway and lines in connection therewith, and is transhipped over the Yangtse River from the terminus of that railway at Pukow to the Shanghai-Nanking Railway dock at Nanking-Ferry. The management have taken advantage of the fact that the traffic offers in bulk by providing vehicles of large capacity. It may be mentioned that the railway does not possess a single goods wagon, open or covered, with a less capacity than 15 tons. All goods stock is fitted with the Westinghouse brake, which ensures much safer and faster running than would be possible with unbraked vehicles.

System of Working and Train Control

The main line is worked on the electric staff system and all train operating arrangements are centralized in a Train Control Office recently provided at Shanghai-North. The majority of the goods trains are run in the night which enabels a much better utilization of the line and stock to be made.



Boilers in the Woosung Shops

Safety First Campaign

A Safety First Campaign was commenced in 1920, and has achieved excellent results. An "Accident Pamphlet" supplementary to the General Rule book was issued in 1920, containing necessary rules and instructions in a readily available form.

Passenger Fares

On and from January 1, 1921, the Passenger Fares were revised and as far as possible the following basis rate per kilometre was observed:

	1st Class	2nd Class	3rd Class	4th Class.
Cents per kilometre ..	3	1.5	.75	.50

Owing to the severe water competition which the Railway have to face along the whole of their system, the utter impossibility of fixing all the fares upon the arbitrary basis of a definite number of cents a kilometre for each class of accommodation was recognised, and therefore, in deciding upon further moderate increases in the fares which came into operation on December 1, 1922, each particular pair of stations was dealt with separately, having regard to the elements of competition and other factors applying thereto.

Goods Rates

Goods Rates are divided into six classes, and apply to Car Load, Metric ton, and 50 kilogramme consignments. These rates are based on the tapering system.

Whilst the Railway is beset with competition by water, the traffic has increased by leaps and bounds, Chinese merchants are more and more realising that "time is money" and appreciate the rapid, easy and safe means of transit afforded by the Railway. Rates for the transport of merchandise by train bear favourable comparison with the charges for conveyance by boat.

Owners' Risk

That the methods adopted to ensure that safety of goods are satisfactory is proved by the fact that practically the whole of the traffic is consigned at "Owners' Risk" rates and it is very exceptional that traffic is booked at "Railway Risk." Claims are practically non-existent.

At present, the Railway finds itself unable, with the existing rolling-stock, facilities and accommodation at its disposal, to deal with the vastly increased volumes of traffic awaiting conveyance to Shanghai and the stock is being worked to the absolute limit of its capacity. At no period in history, perhaps, has there been such a promise of unlimited commercial expansion in China as there is to-day. By virtue of its geographical position the Shanghai-Nanking Railway forms the gateway to Shanghai which, even now the biggest commercial port of the Republic, will in all probability become the greatest centre of world trade on the Western Pacific.

Through Booking

Arrangements have been in operation some time past for the through booking of passengers, baggage and parcels, between the principal stations on the Chinese Government Railways, and between the principal stations on the South Manchurian Chosen and Japanese Government Railways. With a view to encouraging tourist traffic from Foreign Countries to the Orient, tickets are issued at reduced rates for overland and circular tours by rail and steamer, detours and inter-changeable routes being included to suit tourists' requirements. The fact that the traffic has steadily increased shows that the facilites are approved by the travelling public.

Traffic School

All the staff who come into contact with the public are able to speak and write English. A school for the training of traffic employees was established at Shanghai in 1907 and was reorganised in 1915. Admission is gained by competitive examination. The school has a library and is fitted up with models of all the ordinary working appliances in daily use. A model railway track with electrically propelled locomotives, passenger coaches and points and signals complete, embracing three stations has also been installed. The fact that a large number of men who pass through this school are nor occupying positions of responsibility on the Railway proves its success.

Higher Grade Scheme for Engineers and Surveyors

There has also been in operation for some time a higher-grade scheme for the training of Engineers and Surveyors. If, after the examination, a candidate's qualifications are found to be satisfactory, he is admitted to the rank of Probationary Student Engineer, and after specified periods he may advance successively to the grade of Engineering Student, Junior Assistant Engineer, Senior Assistant Engineer or Junior Assistant Surveyor and Senior Assistant Surveyor. Promotion in each branch and grade is by examination.

Fire Brigade

Special attention has been given to the maintenance of Fire Brigades formed from the members of the staff, and the arrangements generally for dealing with outbreaks of fire are most satisfactory. The personnel comprises 155 officers and men.

Recreation Ground

The Railway has gone to a good deal of expense in providing recreation ground for their employees at Markham Road and Shanghai North. These grounds are well equipped for tennis, cricket, lawn bowls, etc.

New Vessel for Adriatic—Far Eastern Service

THE Stabilimento Tecnico Triestino have launched from their San Marco yard the motorship *Romolo* for the Lloyd Triestino.

She is to be employed on the company's service from the Adriatic to the Far East, together with the *Remo*, which is in course of construction. The motorships *Esquilino* and *Viminale* are at present maintaining this service.

The dimensions of the *Romolo* are as follows :—

Length 147.75 metres ; breadth, 18.90 metres ; depth, 10.65 metres ; 11,500 tons dead weight. She will have a speed of 13 knots an hour.

The vessel is of the double deck type. There is accommodation for 50 passengers amidships in large single-class and double-berth cabins. Also amidships are a promenade deck, verandah, smoking room and music room, as well as officer's cabins. The *Romolo* has six large hatches, served by 16 electric winches.

The propelling machinery will consist of two single-acting 4 stroke Burmeister and Wain type Diesel engines, which will develop 2,500 h.p. at 115 revolutions per minute. Each engine consists of six cylinders having a bore of 749 m.m. each and a stroke of 1,200 m.m. Both the deck and the engine auxiliaries, which are under construction at the Cerpelli Works at La Spezia, will be electrically driven.

After the launch the guests were invited to a dinner given by the Lloyd Triestino, during which Admiral Dentice di Frasso, president of the board of directors of the company, pointed out in his speech that the company intended to replace their old tonnage with up-to-date motorships, which he considered to be the best vessels with which to face the present shipping crisis, and which will ensure the predominance of the Italian flag in the East, following the old Italian traditions.

H. E. Signor Cremonesi, Governor of Rome, added a few words, and pointed out that giving the name of the founder of Rome to the new unit of the Lloyd Triestino was an augury for the success of the vessel.

Delivery of New Bank Line

Messrs. Harland and Wo'ff, Ltd., Govan, recently delivered the motor vessel *Speybank*, built to the order of Messrs. Andrew Weir and Co., to that firm after having undergone very successful trials on the Clyde.

The new vessel, which is 434-ft. long by 53-ft. 9-in. wide, by 37-ft. in depth, has a gross tonnage of about 5,200. She is of the shelter deck type, and is classed 100 A.I. at Lloyd's. The double bottom extends fore and aft, and is used for the carriage of oil fuel, fresh water, or water ballast. Seven bulkheads extend to the upper deck, and divide the vessel into five cargo holds, motor room and fore and after peaks. The holds are fitted with cargo hatches of ample size, which are worked by twelve of the builders' special steel derricks, each suitable for 5 ton lifts, and rigged in the best manner for the efficient handling of cargo. The derricks are attached to two steel pole masts and four derrick posts, and an additional heavy derrick is fitted at the after side of the foremast suitable for dealing with loads up to 25 tons.

The propelling machinery of the *Speybank* consists of two sets of Harland-Burmeister and Wain six-cylinder, four-cycle motors, with electrically driven auxiliaries.

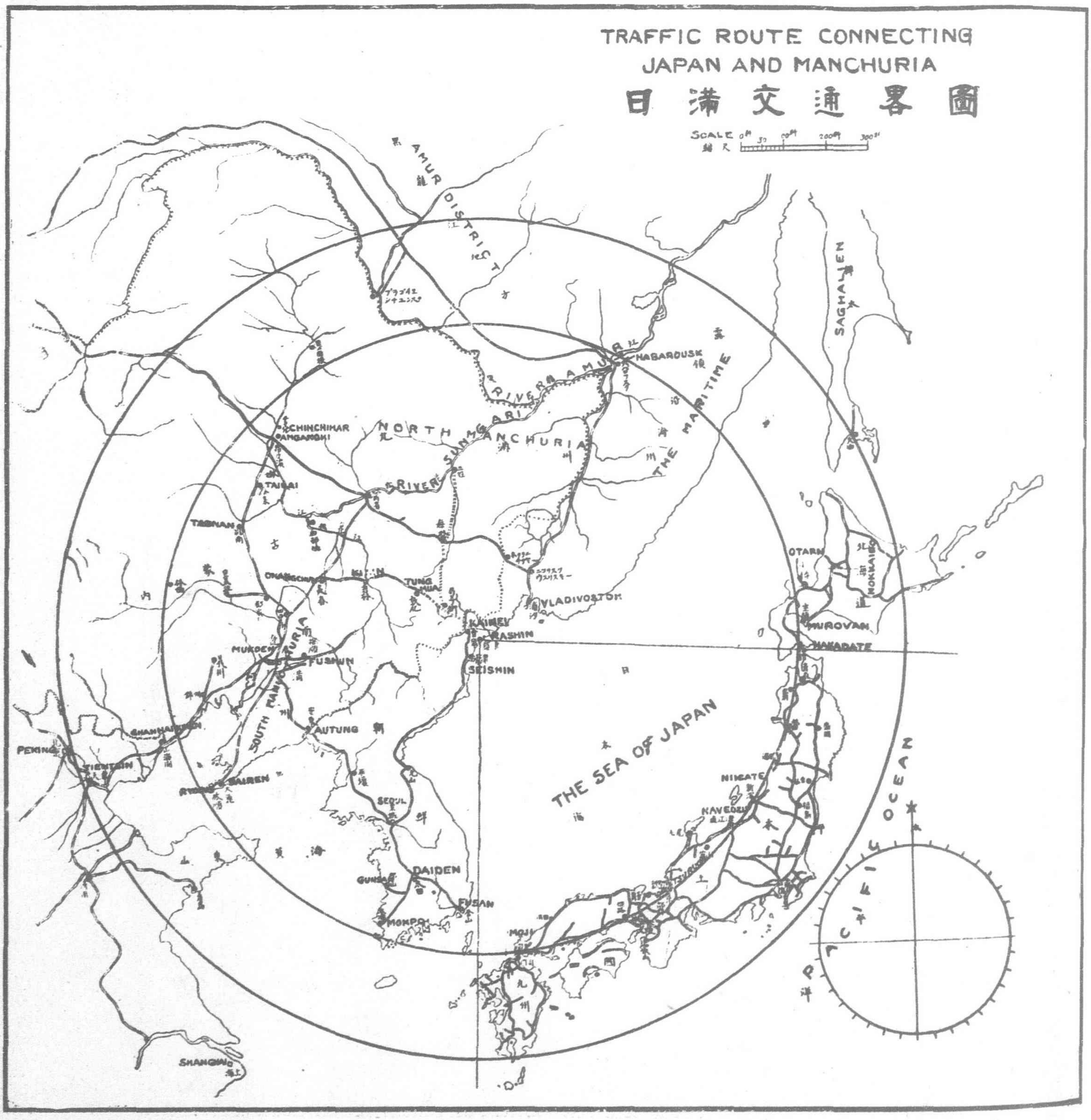
The New Traffic Route Connecting Japan with North Manchuria

By Seikichiro Watanabe

[Although in this issue, we publish a full account of the new railways in Manchuria, the following article is also given because of the valuable information, it contains.]

The population and food problems of Japan are the two important subjects much discussed recently in both the political and economic circles in Japan, and, in order to solve them, various schemes have been drawn up.

The following gives statistics of the population of Japan, which is closely connected with the food problem:



Population

Year	Population in Japan Proper
1896	42,708,264
1901	45,446,397
1906	48,164,777
1911	51,753,945
1916	56,335,983
1920	55,963,053
1925	59,736,704

From these figures it will be seen that during the past five years there has been an increase of 6.74 per cent. in population. If the increase continues at this rate, Japan will have a population of 90,000,000 at the end of 30 years.

The population of Japanese colonies and territories outside of Japan Proper is as follows :

	1920	1925
Korea	17,264,119	19,519,927
Formosa	3,655,308	3,994,236
Saghalien	105,899	203,504

The rate of increase in population is 13.06 per cent. in Korea, 9.27 per cent. in Formosa and 92.2 per cent. in Saghalien. With these respective rates of increase the population will have the following figures, after 30 years :

Korea	33,000,000
Formosa	6,760,000
Saghalien	500,000

If the total added to the population of Japan Proper, it will reach 130,000,000.

Production of Rice and Rice Acreage

Year	Yield in Japan Proper	Rice, Acreage
1896 ..	39,000,000 " Koku "	2,780,000 " Chobu "
1901 ..	42,000,000 ,,	2,850,000 ,,
1906 ..	47,000,000 ,,	2,900,000 ,,
1916 ..	55,000,000 ,,	3,070,000 ,,
1920 ..	63,000,000 ,,	3,130,000 ,,
1925 ..	59,700,000 ,,	3,150,000 ,,

" Koku "—4.9629 bushels " Chobu "—2.45 acres

As the table shows itself, during the thirty years, there has been an increase of 13.3 per cent. in acreage, while the production of rice has increased by 53 to 62 per cent. The rate of increase in the production reached its maximum in 1920, but after that year, there is no indication that it will increase further. As to the rice acreage, it has been showing a decreasing tendency in the recent years.

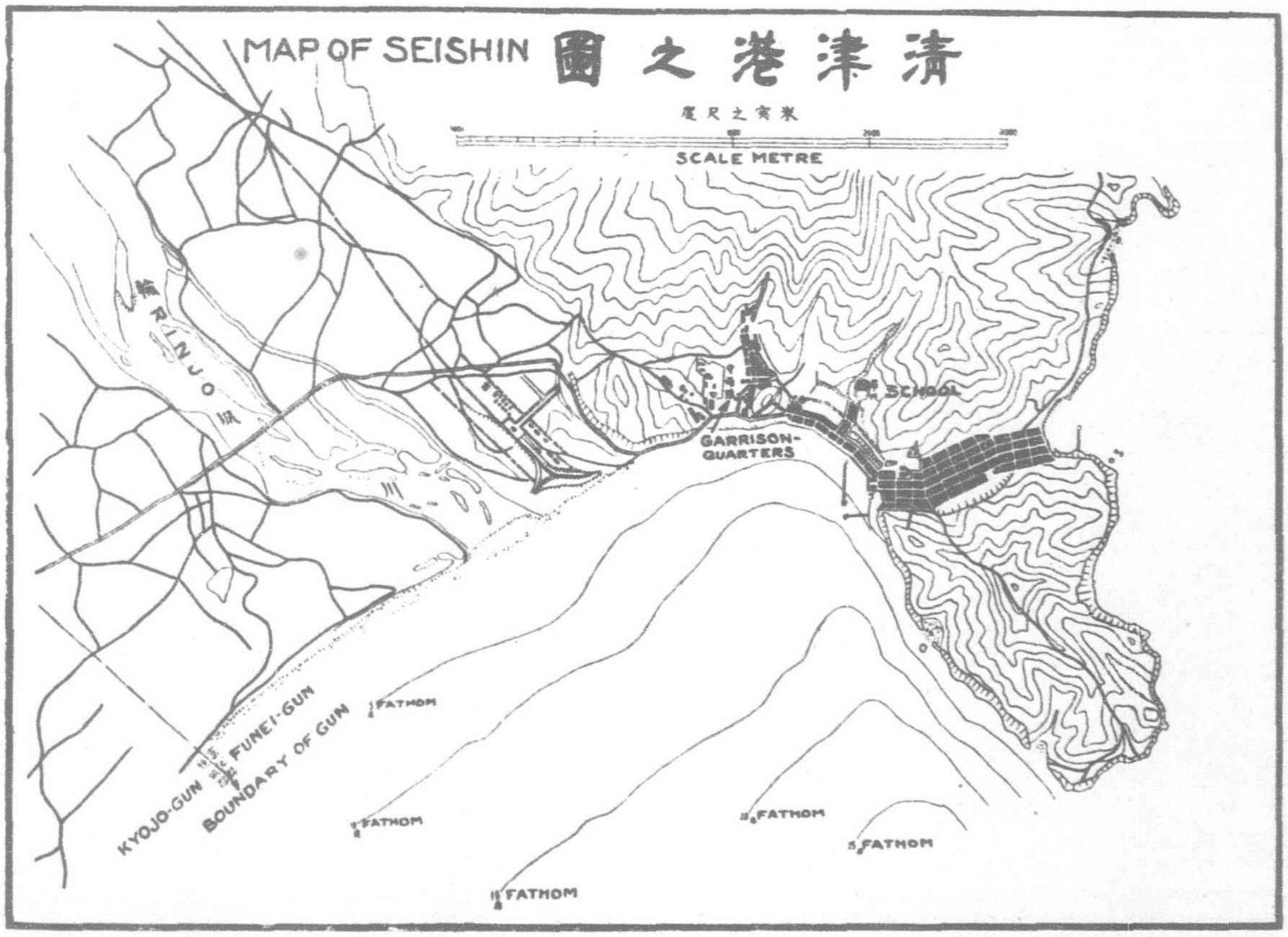
The production of rice and rice acreage in Korea and Formosa. are as follows :

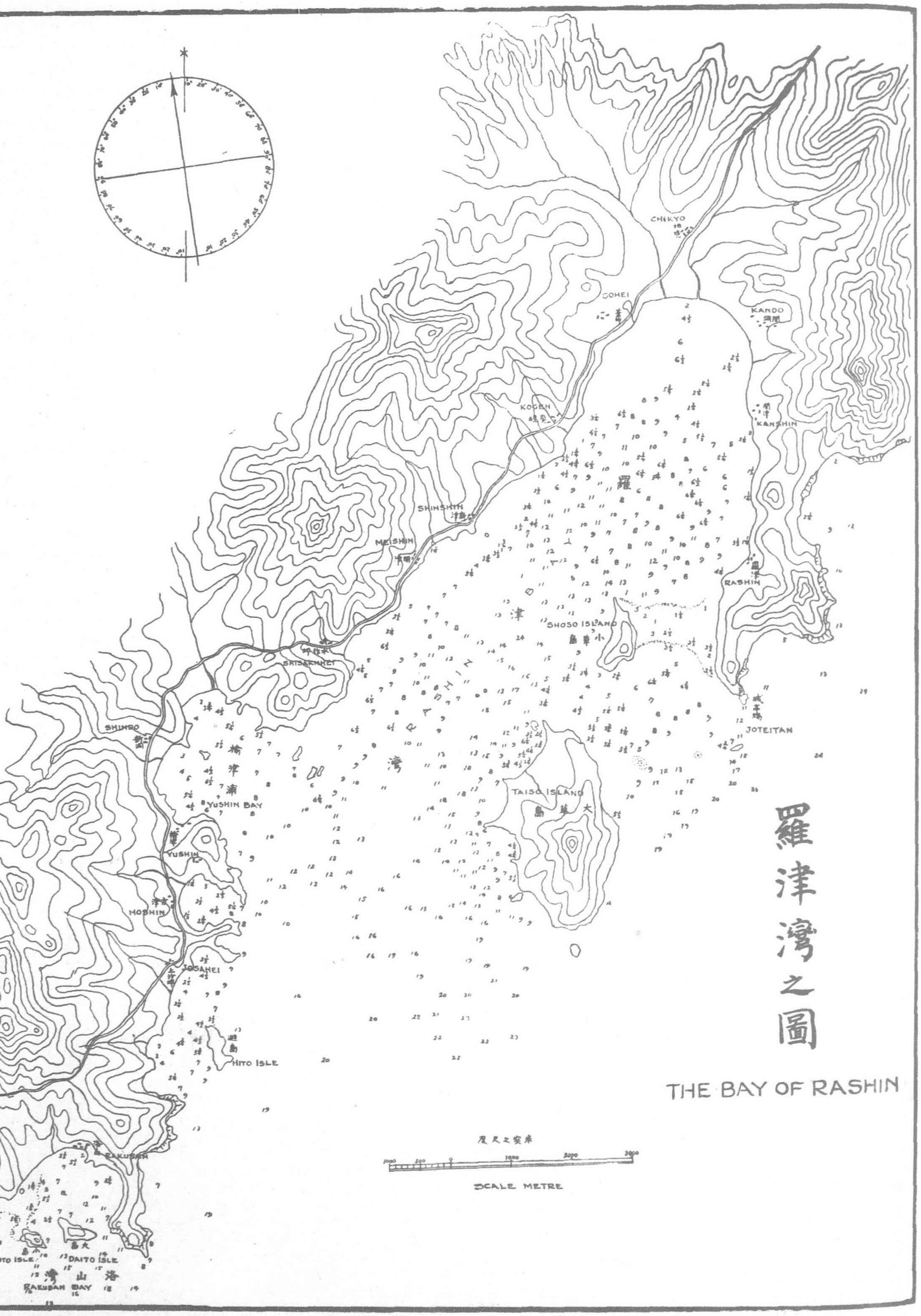
Korea		Rice Yielded	Rice Acreage
	1923	13,390,000 " Koku "	——
do	1925	14,860,000 ,,	1,600,000 " Chobu "
Formosa	1925	6,000,000 ,,	——

The *per capita* consumption of rice in Japan Proper 30 years ago was about 8 " to " 6 " Sho," while in 1925, it increased to 11 " to " 3.1 " sho," according to the investigation made by the Department of Agriculture and Forestry. Assuming that the amount of consumption of rice in the future will not increase more than that of the present time, it will require after 30 years, 101,800,000 " Koku " for Japan Proper alone. In those days when Korea was annexed to Japan, the *per capita* consumption of rice was only 6 " to," while in recent years, it exceeded 7 " to " with increasing tendency. According to the rate of increase, after 20 years, it will most probably reach 1 " Koku " per head annually. Formosa as well as Saghalien will be put under the same condition. If so, after 30 years, the amount of consumption in Korea will reach 33,000,000 " koku," 6,800,000 " koku " in Formosa and 500,000 " koku " in Saghalien, total of which is 142,000,000 " koku " including that of Japan Proper. In Japan Proper, the consumption is about 67,560,000 " koku " against the production of 59,710,000 " koku ", showing the shortage of 8,850,000 " koku." To meet the demand, 4,500,000 " koku " of rice should be supplied from Korea and 2,500,000 " koku," from Formosa, besides the stock brought over from the previous year. But that amount is not sufficient. After 30 years, it is obvious that there will be a great shortage in the production, say 42,000,000 " koku " in Japan Proper and 61,500,000 " koku " in Korea and two other territories. It is problematical that they can make good these shortage. The Home Office has under plan to colonize Hokkaido in order to obtain an increase of production by 10,000,000 " koku," investing Y.1,000,000,000 during the space of 20 years, while the Chosen Government-General has drawn up a scheme for the increase of production of rice by 5,000,000 " koku " with the expenditure of Y.350,000,000 which is to be defrayed during 10 years. The latter scheme was put in operation starting the fiscal year of 1925. Even though these schemes were satisfactorily materialized, the people will continue to face with the food problem which now rests with the Statesmen and Government Authorities, pending to be solved.

It is expected that rice shipped from Korea to Japan Proper will decrease in quantity yearly. Though an increase of production by 8,000,000 " koku " be effected within ten years in Korea, a great part of these will most probably be consumed in the Peninsula leaving little to be shipped to Japan Proper.

In Japan, there was a stock of rice of 3,000,000 "koku" yearly during the past 30 years, but at persent, there is a shortage of about 10,000,000 "koku" yearly. Under the circumstances, the price of rice is rising year after year. It will be very difficult for the Japanese people to live on




CHIKYO
SOHEI
KANDO
KOGEN
KANSHIN
SHINSHIN
MEISHIN
RASHIN
SHOSO ISLAND
SAISAKUHEI
SHINGO
YUSHIN BAY
YUSHIN
HOSHIN
JOSAHEI
HITO ISLE
TAISO ISLAND
JOTEITAN
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rice alone and consequently they will have to take some substitutes for rice. But even such substitutes can not be easily obtained in Japan Proper where there is little room for the crop acreage. Therefore, no more farmers than those at the present time are possible in Japan Proper. The majority of the increasing population will have to engage in manufacturing industries hereafter, thus placing the country on an industrial basis. In doing so, they must endeavor to obtain cheap raw materials as well as low grade food stuffs in order to lower the cost of production as much as possible.

How to Solve the Food Problem

The scheme for increase of production of rice is apt to meet with opposition of the farmers. However, it should be carried out in a way that it does not threaten farmers and that it is welcomed by them. The way is the improvement of traffic condition of Japan *vis-a-vis* North Manchuria. The greatest fruits of Japan's administration in Manchuria is that they have relieved the shortage of foodstuffs in Japan Proper for so many years. As to the trade amount, it is not worth mentioning as compared with Japan's foreign trade. If the South Manchuria Railway was not run by Japan, there might have been a more serious food problem in Japan. Up to 1906, the staple products imported to Japan from Manchuria were only two items, namely beans and bean-cakes. These were shipped from Yingkow, their total export amount to Japan being from 100,000 to 150,000 tons annually.

In 1907, the first year of the business operation by the South Manchuria Railway, however, about 600,000 tons of agricultural products were exported from Manchuria to Japan. At present, over 2,000,000 tons of agricultural products including about 1,500,000 tons of bean-cakes go to Japan yearly. The bean-cakes are being applied to the paddy-fields in Japan which could obtain an increase of production of rice by about 20,000,000 in recent year. It can be said, therefore, that the products from Manchuria do much for the increase of production of rice in Japan. A considerable quantity of millet is supplied by the South Manchuria Railway to Korea where the majority of the inhabitants live on the produce instead of rice which is largely shipped to Japan.

As a result of the 20 years' undertakings by the South Manchuria Railway Company, almost all available lands in South Manchuria have been brought under cultivation. Therefore, it seems impossible for this region to continue to export further large quantity of agricultural products at cheap price. Besides, recently Germany began to consider the importance of beans staple products in Manchuria with a view to exporting same in a large quantity to her country. Therefore, the prices of beans as well as bean-cakes are showing a higher tendency.

The soil of the basin of the Liao river which is traversed by the South Manchuria Railway line is very fertile with abundant production of various kinds of cereals. But the district beyond the basin is not suitable for cultivation as the soil is not fertile and it is mountainous. As to the North Manchuria and northern part of Inner Mongolia which extend over the two provinces, Kirin and Heilungkiang, there are inexhaustible mines of wealth with mineral and forestry products which can be obtained from the vast plains and the dense forests in the basins of the Amur and Sungari rivers and three other large rivers. The area is several times as large as that of South Manchuria. As the soil is rich, it is suitable for cultivation of bean and wheat, but the region remains unexploited due to the lack of traffic facilities.

Japan ought to exploit North Manchuria with such inexhaustible resources in order to obtain agricultural products, forestry products, mining and farming products therefrom and to supply them as the raw materials of foodstuffs and manufacturing industry.

With the progress of exploitation, dwellers in the district will increase in number, finally becoming great consumers of manufactured goods. To take a concrete example, the Chinese inhabitants along the South Manchurian Railway line have witnessed a wonderful development during the past 20 years.

To observe the development of the exploitation of South as well as North Manchuria, it is advisable to refer to the traffic conditions of the South Manchuria Railway Company. In the first year after the business was operated by the Company, the total amount of goods transported showed 1,480,000 tons of which 300,000 tons were taken by North Manchuria, the remainder going to the South Manchuria Railway. However in those days, as the freight cars were used for transporting railway materials for reconstructing on the broad gauge system, the general goods which actually entered and left the South Manchuria district was in the neighborhood of 700,000 tons, of which about 300,000 tons were local goods. The amount of goods imported and exported to the districts beyond Manchuria was 600,000 tons. The amount of agricultural products transported throughout South as well as North Manchuria was not more than 800,000 tons. However, now-a-days the total amount of transportation is about 14,000,000 tons including 11,000,000 tons which arrive and leave the South Manchuria alone. Of the total amount of transportation, 7,000,000 tons are the local goods, while about 7,000,000 tons are import and export goods. Agricultural products were transported as much as 4,500,000 tons of which about 3,300,000 tons were from South Manchuria while about 1,200,000 tons were from North Manchuria.

According to the above figures, it will be seen that the rate of increase in the amount of goods transported is 5 per cent. yearly. The rate of increase in the quantity of goods is particularly seen in the case of South Manchuria which has remarkably increased its produce in quantity. Through the percentages of import and export goods as well as the local goods, we can know the fact that the business transactions have been developed in South Manchuria. With its far richer resources than those of the South Manchuria, North Manchuria has means of transportation. This is entirely due to the fact that the latter district is not yet well exploited owing to the lack of transportation facilities.

As a matter of fact, the products from the North Manchuria go to Europe and America, but a greater part of them are shipped to Japan. Harbin, central market in North Manchuria, has the two routes leading to the sea ports, Dairen and Vladivostok. When shipping from Japan to Harbin, goods must be transported first for the section between Kobe and Dairen, the distance of which is 869 miles and then, the section between Dairen and Harbin with a distance of 586 miles. There is another route from Japan to Harbin which consists of the two sections, Tsuruga and Vladivostok, with a distance of 470 miles, and Vladivostok and Harbin with a distance of 486 miles. If the latter route is taken, it is a far shorter distance than that of the former, but according to various conditions, goods for Harbin from Japan would pass Dairen to be transported by rail. Under the circumstances, the districts along the railway line in the South Manchuria which are nearer to Dairen have been developed earlier than the North Manchuria. Though it is partly due to the difference of policies taken by the Russia who put the North Manchuria in her sphere of influence and by Japan who only endeavored to develop South Manchuria, the condition of traffic facilities has a great connection with the development of the surrounding districts.

If the development of the North Manchuria is the need of the hour for Japan, she has, besides the South Manchuria Railway, to construct another railway with the shortest distance to the North Manchuria. The Railway will be one which, starting from the northern part of Korea, runs to the province of Kirin. When the railway, say the North Manchuria Railway, is completed and the direct transportation is satisfactorily effected between the Japanese and Chinese railways, it will doubtless bring about the remarkable development of the North Manchurian district. According to the proposed route, the distance between Japan ports and Harbin which is about 1,800 miles on average will be shortened by about 800 miles.

The improvement of the traffic route of Japan connecting with the North Manchuria is a key to solve the food problem. When the proposed North Manchuria Railway is completed, a large amount of agricultural products, particularly bean-cakes, necessities for the farmers in Japan Proper can be supplied at cheaper rate to their satisfaction.

In the future, due to lack of rice crop, Japan will have to find out some substitute for rice, when such will be supplied from the North Manchuria by the proposed railway.

The traffic route connecting the Northern part of Korea with the North Manchuria.

To make a new traffic route from Japan to North Manchuria, the best way is to construct a railway starting from the Northern part of Korea and running into the province of Kirin. In 1918, Mr. Kamezo Nishihara, representative of the Japanese Government, concluded a contract with the Chinese Government for constructing a railway, Kirin-Kainei Railway, when the former paid Y.10,000,000 in advance to the Chinese Government. In October last, the Chinese Government decided to build the railway line for the section

between Kirin and Tunhua and the construction work has been undertaken by the South Manchuria Railway Company, which began surveying for the proposed line. The distance between Tunhua and the Korea boundary is about 120 miles with the progress of work, the terminus, that is a seaport in Korea, must be sought somewhere.

When the proposed broad guage railway starting from the Northern Port of Korea and leading to Changchun via Kirin and Tunhua is opened to traffic with mutual agreement of both parties, Japan and China, some 1,000,000 tons of goods part of 2,800,000 tons which would pass Changchun will be transported by the new line.

If the section between Changchun and Petuna is opened to traffic in the future, the goods from the neighboring districts will be taken out also by the new line.

The natural resources in the Province of Kirin are very rich with inexhaustible products of agriculture, forestry and mines.

As to the forestry products obtainable in province, practically unlimited supplies are to be had. However, owing to the lack of transportation facilities, a greater part of the forests remain without being cut down.

Japan's requirements in lumber are on an enormous scale. With the progress of the printing business in Japan, the demand for the lumber for pulp purposes is increasing at the rate of increase of 10 per cent. yearly. Though the materials are supplied from Hokkaido, Saghalien and the Maritime Province, the supplies do not meet with requirement with increasing tendency in the price. If the proposed line will be open to traffic, the lumber produced in the province of Kirin will be supplied at far lower prices to the paper mills in Japan. And if the branch lines are built for the purpose of carrying out the lumber, almost unlimited supplies will be obtainable therefrom. Lumber for building use which are in demand in Japan mostly come from Hokkaido and Saghalien, a half of the total quantity being from America, to which Japan is paying Y.70,000,000 annually, as the produce of Kirin is superior to that of America and the price is cheaper, it will be possible to utilize Kirin rather than American lumber.

When manufacturing become prosperous in Japan Proper, a large quantity of wooden boxes for packing use as well as various kinds of forestry products as raw material will go to Japan from North Manchuria. As to the charcoal, a considerable amount is now being supplied from Manchuria to Japan through the Antung-Mukden line and the Chosen Railway.

In the first year after the operation of the railway, 200,000 or 300,000 tons of lumber alone will be sent out from the North Manchuria, and within 10 years, the figures will come to 1,000,000 tons yearly with the same commodity alone.

As stated above, the soil of the North Manchuria is far richer than that of the South Manchuria. Particularly, the soil of the province of Kirin is very fertile. That there is little need of fertilizing farms and paddy-fields.

It is not necessary to manure the newly cultivated land for 10 or 15 years. The old cultivated lands are to be manured once every three or four years. Too much fertilizing brings bad results on the contrary. At the present time, 40 per cent. of the acreage of the whole available land has been cultivated, the remaining acreage remaining uncleared. The number of inhabitants in the cultivated land is about 300 per square mile, and they are feeling much difficulties in sending out their gatherings, due to lack of transportation facilities. The acreage of the uncultivatable land adjacent to the proposed railway line is 1,150,000 "cho" in area, while that of cultivated land covers only 260,000 "cho." Wheat, beans, tobacco, beet and flax are the most suitable crops for the cultivated land. The rice-crop in the paddy-field is showing an excellent results.

The province of Kirin is never visited by flood as there are a range of large forests. On the other hand, rivers are found almost everywhere in the Province, and vast plains lie in the surrounding district, being quite free from damages from a drought throughout the year. For the growing of rice, therefore, this region is ideal. In recent years, the Korean farmers, who began growing of rice along the basin of the Sungari river, have increased in number. Even with their primitive cultivating methods, they are gathering the crop of 15 to 25 "to" from the field of about .245 acres in area, which aggregate about half a million "koku" in quantity. In the neighborhood of Tunhua, the farmers would cultivate rice simply for their own consumption, as they are unable to sell the crop outside owing to the difficulties of transportation. However, if the railway is to be opened to traffic, it will encourage the farmers to cultivate rice.

As to the mineral products of the Province of Kirin, they do not look very promising. The gold mine of Chiapikou in Huatien Hsien is well known from old times, but at present it can not be hoped that gold can be worked in large quantities. The copper mine of Tienpaoshan seems to have little prospect.

The Hungyao Coal Mine has a deposit of about 300,000,000 tons of coal, but it is of inferior quality. The coal of the best quality is obtainable from Lafaho where 20,000,000 tons of deposits lie. Mishan Hsien on the Chinese Eastern Railway produce coal of better quality than those of Fushun. In addition to these, there are several more mines containing silver, copper, zinc and other minerals in the Province, but the results of investigation are not available.

In Kankyo-Hokudo of Korea where the proposed line is to pass, there are coal mines with almost inexhaustible quantity of coal which is quite similar to Iwaki coal of Japan in the quality. If the line is completed, it is expected that millions of tons of coal will come out by rail from this region yearly.

As 30 years have elapsed since the coal mine in Iwaki district was opened, it is now being worked from 2,000 ft. depth underground. As a consequence, with the increase of cost of production, the sale-price at the mine is quoting from Yen 60 to 90 per 10,000 "kin." this mine is unable to continue to produce, there will be no coal than Kanhoku coal. As Kanhoku coal is easily worked, the cost price is not more than Yen 2 per ton on average. Upon completion of the project line, therefore, the coal can be delivered to any port on the coast of the Japan Sea at the quotation of about Yen 6 per ton or from Yen 35 to 40 per 10,000 "kin." including cost and freight. If so, the present market for Iwaki coal will be monopolized by Kanhoku coal. Kanhoku coal is young in its age and has more volatility than those of other higher quality. Therefore, through the process of high or low temperature distillation, crude petroleum and other raw materials for manufacturing purposes are obtainable from the coal. It is anticipated that the coal will gain popularity in these respects in Japan in future.

Thus, the goods of tons of millions with mineral products alone will be transported by the line. If the project line possesses the following conditions, it is very promising.

1. That the line be of a gentle grade of not more than 1 in 100 at the steepest point and that it should be so designed that the efficiency of the traction power of locomotive can be utilized to its full capacity, thus economizing the cost of operation.
2. That the harbour equipment on Japan Sea should be improved so as to give facilities for the connection between land and water.
3. That both Japanese and Chinese authorities should work together for the common benefit in making the direct traffic from the port on Sea of Japan to Changchun easier as much as possible.
4. That the competition between the line and the South Manchuria Railway main line should be avoided.
5. That is should be so properly managed that the cost of transportation will be reduced, followed by the reduction of the freight rates.

In effecting these conditions, it may be attended by various difficulties. However, the scheme ought to be realized according to the conditions in spite of difficulties, as it is essential for the solution of the food problem as well as for founding Japan on an industrial basis. When the project line with the above conditions is opened to traffic, the estimated amount of goods to be transported by the line from and to the ports on the Sea of Japan will be as follows : 3 years after operation : 1,000,000 ton ; 5 years : 1,300,000 ton ; 10 years : 1,700,000.

Upon the completion of the project line, the development of sea port and facing the Japan Sea which is to become the terminus of the line is beyond doubt. Then, where can we find out the most suitable port in Korea ?

The conditions of the Three Ports, Dairen, Seishin and Rashin and their comparison

Before selecting the port facing the Sea of Japan in Korea as a place of importance for the new traffic route, these must be taken into consideration that upon the operation of the new line, 2 or 3,000,000 tons of goods will be transported by the line within several

years and some 5,000,000 tons, within 10 years annually with still increasing tendency and that the port to which such large quantity of goods are to enter and to be cleared should be well equipped to meet with the requirement. It is therefore advisable to model after the Port of Dairen which is the most complete of its kind.

Generally speaking, the Port of Dairen has been constructed according to the scheme drawn up in the days under the Russian administration. There are three piers inside the breakwater which embraces the surface of the water covering about 1,000,000 " tsubo" in area. The total length of mooring quay is over 13,000 ft. In addition, there are wharves for dangerous goods, a number of godowns and sheds and spacious offices on the compound which is about 430,000 " tsubo" in area. Up to this time, the expenditure spent for the harbour equipment reaches Yen 40,000,000. It is itemized as follows : Yen 8,000,000 for dredging and reclamation ; Yen 6,000,000 for breakwater ; Yen 12,000,000 for docks, wharv s and mooring quay ; Yen 7,000,000 for godowns and sheds ; Yen 2,000,000 for office building ; Yen 5,000,000 for other equipment.

Coal loading arrangement and No. 4 wharf are now under construction.

The former will be shortly completed, while the latter is expected to be brought to completion. With the increase of the export amount of coal in future, a new harbour with a wharf for loading coal will be built.

The goods which pass through the port of Dairen are increasing in quantity by over 300,000 tons per year, getting an average for the past 30 years. In 1925, the quantity of goods entered and cleared the port reached about 6,500,000 tons.

The Port of Dairen has a bright prospect with an increasing tendency of the amount of goods to be handled there. After 5 or 6 years, the amount will probably exceed 10,000,000 tons.

As stated above, one of the new traffic routes connecting Japan and the North Manchuria is the Kirin-Kainei line. As the Seishin-Kainei line which starts from the port of Seishin in Kankyo-Hokudo, Korea and runs to Kainei is already in operation, a scheme has been drawn up to build a railway connecting Kirin with Kainei, utilizing the Seishin-Kainei line.

The Port of Seishin

During the Russo-Japanese war, the port of Seishin was made a commissary base of the rear-service of the Japanese Army. From this port to Kainei, the military light railway was constructed in order to convey provisions, arms and ammunitions to the front. After the restoration of peace, Seishin became a commercial port, followed by the reconstruction of the Seishin-Kainei line into broad guage. At present, Seishin is a place of importance for the development of the Northern Korea. Why the Japanese Army selected this port as the commissary base ? It was not because of the favorable condition of the harbor, but because of it was impossible to find any other suitable harbor on the coast north of Seishin owing to their being subject to The Russian menace at that time. Seishin is not qualified as a harbor. As will be seen from the map, the harbor which extends over the east and west has a curved shore in the north. No island is round in the front of the harbor facing the Sea of Japan, and the harbor is exposed to as far as Kyushu which lies opposite. As the harbor is visited by mountainous waves in summer time, there are usually several occasions in a year when cargo works are totally suspended for five or six days consecutively. There are about 4,000 houses and shops which stand on a reclaimed ground surrounded by shores and hilly districts at the rear of the port. The depth of water at the spot 100 or 400 metres off the shore is more than 10 fathoms. As it is inconvenient for the vessel to moor in the harbor owing to the depth of the water, no mooring quay can be constructed there. The vessels of the larger type would carry out their cargo work off the harbor by means of lighters and when the sea is high, such vessels must shelter in other harbors. A moorings for lighters and launches is provided inside the breakwater which is erected just outside of the town limits. Seishin Station, terminus of the Seishin-Kainei line is located on the plain along the river Yujo at the west end of the town. A hand light railway is in operation for the section covering about 2 miles from the station to the moorings.

With the recent exploitation of Kankyo-Hokudo coupled with the increase of Chientao trade, the port of Seishin has had a remarkable development. The amount of goods handled here shows the rate of increase of about 25 per cent. annually, about 400,000 tons of goods having passed this port in 1924. Some time ago, the Chosen Government-General decided to build the harbor with the cost of Yen 2,500,000 and it was partly set to work. According to the scheme, a breakwater with the height of 20.3 metres and the length of 350 metres was to be constructed at the spot about 18 metres deep in water, 400 metres off the shore, and two mooring buoys were to be provided inside the breakwater covering only 40,000 *tsubo* in area. In addition to these, it was also planned to reclaim a part of the shore and to provide with a side-railings so that the distance of the traffic route between water and land be shortened. After the close investigation made by the authorities, however, it was found impossible to complete the harbor facilities with such expenditures because of the deepness of water as well as the high seas prevailing there. As a consequence, the Government-General decided to increase the estimated cost to Yen 6,900,000 and to carry out the scheme on a six year programme starting from 1926.

If the Port of Seishin is selected as the terminus of the project line, a new town must be constructed on the plain along the river Yujo west of the port. The town will not be capable to take in more than 50,000 inhabitants owing to its land condition. The length of mooring quay which can be equipped with here will not exceed 50,000 ft. with the maximum capacity for cargo work of 2,500,000 tons. Though such a port may be constructed, the entry and clearance of vessels will be subject to the conditions of wind and waves. The river Yujo is often visited by floods. To effort the river improvement, it is expected that the expenditure will exceed Yen 10,000,000. Besides, it will cost Yen 20,000,000 for constructing a breakwater and excavating and dredging works, and sone Yen 10,000,000 for quay and land equipment. Therefore, to complete the harbor facilities, the total expenditure, with the exception of that for town planning is estimated at about Yen 50,000,000.

The natural features of the port of Seishin does not permit of conversion into larger harbor. But along the northern coast Kankyo-Hokudo, there are several bays which can be made commercial port. They are Kido Bay, Shashin Bay, Rishin Bay, Rasin Bay, Yuki Bay, Taishin Bay and Seisuira. Of these, Rashin Bay is the best suitable for a commercial port, the remainder having respectively more or less defective points.

Rashin Bay is situated at a sport about 40 miles north of Seishin. The latitude is higher by 3 degrees 20 minutes by that of the port of Dairen. As the warm current is running along the coast, even in winter time, it is comparatively warm. The temperature is warmer than that of Dairen, as Rashin Bay faces the sea in the South, while it is surrounded by mountains in the East, North and West. The two islands, Shoso-to and Daiso-to are embraced by the bay. These two islands and a shoal between the end of the bay and Shoso-to island serve the purpose of a breakwater. If levees are erected on both ends of the shoal and the central part of the shoal are reclaimed, extensive sheds and mooring quays can be provided there with a small expenditure, and at the same time, it will turn to a perfect breakwater. The depth of channel between Daisho-to island and Shose-to island is four fathoms at the shallowest point, while the channel west of Daiso-to island is so deep that a man-of-war of larger type is navigable. The depth of water of every part of the coast inside the bay is from 6 to 7 fathoms. Therefore, if quays are erected at any part of the coast, even the vessels with 7,000 tonnage can be moored alongside. As the difference of the ebb and flow of tide is only 2-ft., it is very convenient for harbor construction and cargo work. The total surface of water covers about 8,000,000 *tsubo* in area.

It is quite unnecessary to build a breakwater in case of the harbor construction of Rashin Bay, if it is provided with mooring quay and pier. The expenditure for erecting a mooring quay with the length of about 8,000-ft. and its accompanying harbor equipment will not exceed Yen 5,000,000. The land equipment can be completed with the cost of about Yen 5,000,000. Therefore, at the total cost of about Yen 10,000,000 the perfect harbor facilities capable to handle over 3,000,000 tons of goods can be made.

Some people say that Rashin Bay is qualified as a commercial port, but on the land, there is a shortage of water for drinking purposes as well as for supply to vessels and that the lay of the hinterland is not suitable for constructing railway. However,

Rashin has a level ground covering 4,000,000 *tsubo* in area which is sufficient for about 100,000 population with various commercial and industrial organs. The water of good quality can be obtained here by drilling on the land. There is a suitable spot in the mountains nearby for erecting a big reservoir.

Inside the Bay of Rashin is an ideal depot for lumbers which easily can be taken on by the vessels coming into the port.

The Two Project Railway Lines with Rashin Bay as its Terminus

The project line of Kirin-Kainei Railway is to start from Kirin and to extend in the eastern direction via Tunnua and at Tung-fassu it becomes two lines, one running to Kainei en route to Lungchintsun and Holung and others leading to the same place via Chintzukai, Tamenling and Tunglungling. The former is of a steep grade, but the distance between Kirin and Kainei can be shortened by 12 miles as compared against the latter. The grade of the latter line can be made gentle, but the construction work along the river Tumen is very difficult. On the Korean side of the river Tumen, the Tumen Light Railway is in operation for the section between Kainei and Dokanchin north of Shojo covering for about 35 miles. The geographical condition of the districts along the line is steep and rugged. If the line be reconstructed as broad guage, it will cost a considerable amount, as in doing so, a number of tunnels should be excavated through the mountains.

In making, new traffic route to North Manchuria, the distance of railway line must be shortened as much as possible in order to enconomize the construction and operation expenses. As the substitute for the Kirin-Kainei line, it is advisable to build a line from Shojo to Rashin, after the second project line between Tungfosu and the boundary North of Shojo is completed. The distance between Shojo and Rashin is about 50 miles and on the line, three large tunnels and two or three small ones have to be excavated, besides a number of bridges to be constructed. The cost of construction is estimated at about Yen 300,000 per mile.

If the project line is completed, the distance between Kirin and the terminus facing the sea of Japan will be greatly shortened with no small economical value.

The following show the distances of the project lines between Kirin and Kainei and between Kirin and Rashin.

The first project line of Kirin-Kainei Railway.

Kirin-Tunghua	... ...	135 miles
Tunghua-Tungfosu	... ...	76 ,,
Tungfosu-the Boundary	... ...	35 ,,
The Boundary-Kainei	... ...	30 ,,
Kainei-Seishin	... ...	58 ,,
Total	... ...	334 miles

The project line of Kirin-Rashin Railway

Kirin-Tunghua	... ...	135 miles
Tunghua-Tungfosu	... ...	76 ,,
Tungfosu-the Boundary	... ...	35 ,,
The Boundary-Rashin	... ...	50 ,,
Total	... ...	296 miles

On the whole, as the new traffic route connects Japan and the North Manchuria, the Kirin-Rashin project line is the best and shortest for the following reasons :

1. The Port of Seishin is not qualified to become a large commercial port to cope with the requirement in the future, and for the harbor construction, it is estimated to cost a considerable amount of expenditure.
2. A large transportation power by the first project line of the Kirin-Kainei Railway cannot be hoped.
3. A considerable amount of expenditure will be required for enlarging the transportation power of the Kirin-Kainei line.
4. The construction work of the second project line of the Kirin-Kainei Railway along the river Tumen required a considerable amount of cost.
5. The distance between Kirin and Rashin is much shorter than that between Kirin and Seishin.
6. Upon completion of the line between Chintsukai and Hailin, a great change will be made on the traffic condition of the North Manchuria with the result that the Rashin-Shojo Railway will be more available.
7. The Railway which runs along the river Tumen does not contribute much to the development of the industry of Korea, while the Rashin-Shojo Railway which traverses Kankyo-Hokudo runs through mining regions wherefrom coal can be transported out.
8. The design for the harbor facilities of Rashin can be easily and economically drawn up.
9. The harbor facilities of Rashin can be constructed at a half cost of that for Seishin.

It is important, therefore, to construct the harbor of Rashin and to build the Rashin-Shoko Railway with a view to connecting it with the Kirin-Kainei Railway. Several billions of money, if invested on the harbor and railway will bring wonderful results after 15 or 20 years.

As will be seen from the attached map showing the traffic route connecting Japan and the North Manchuria, it is interesting to find the situation of the Bay of Rashin which is the centre of a circle which touches the coast of the Japan Sea. Japan is, in fact, situated within an arc with the Bay of Rashin as its centre.

It is hoped that the schemes of harbor construction of Rashin to make it a commercial port, construction of the railway between Rashin and Shojo, and building in co-operation with the Chinese authorities the Shojo-Tunghua Railway must be materialized by the Japanese Government and the people.

$5,000,000 Building Project Outlined by Westinghouse Company

THE present building program for the expansion of facilities at various plants and offices of the Westinghouse Electric & Manufacturing Company, will involve an expenditure of $5,525,000, according to T. P. Gaylord, acting vice-president of the Company.

New factory structures or office buildings are now in course of construction at East Pittsburgh, Pa., headquarters of the Company and at Mansfield, Ohio, Detroit, St. Louis, East Springfield, Mass., Sharon, Pa., and Derry, Pa.

The cost of the new general office building now nearing completion at the East Pittsburgh works of the Westinghouse Company is $1,500,000. The structure is 11 stories high, with a floor area of 165,000 square feet. This space is designed for the accommodation of 1,800 employes. The building is scheduled for completion late this summer.

Plans for the construction of a $500,000 storehouse for finished products at the Mansfield works of the company have been approved. The building of steel-brick design will be four stories high and will have a floor area of 130,000 square feet. This is the third building to be erected by Westinghouse at Mansfield since the company moved there from Flint, Mich.

The building under construction in Detroit represents an expenditure of $400,000. The building is four stories, of concrete construction with brick exterior. It will have a floor area of 100,000 square feet. It has been designed for use as office, warehouse and service station.

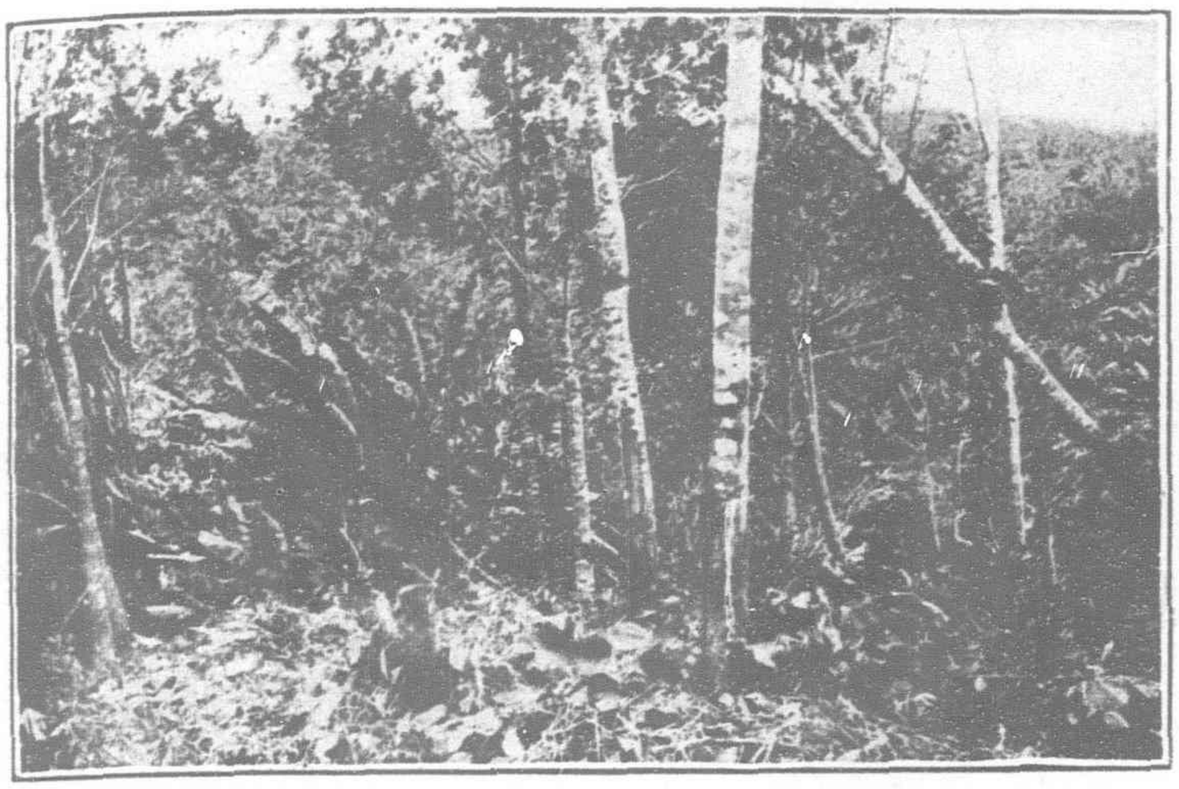
The George Cutter organization of the Westinghouse interests has under construction a $300,000 building in St. Louis, Mo. This structure will be used as a cement pole plant—a new Cutter industry. The building is one story high and will have a floor space of 38,000 square feet.

Plans have been completed for additional buildings at the East Springfield Works that will represent an outlay of approximately $475,000. The principal part of the program calls for a three-story office building. The offices of the new building will provide executive rooms for the engineering, sales, drafting and mechanical departments. The cost of this building will be $275,000.

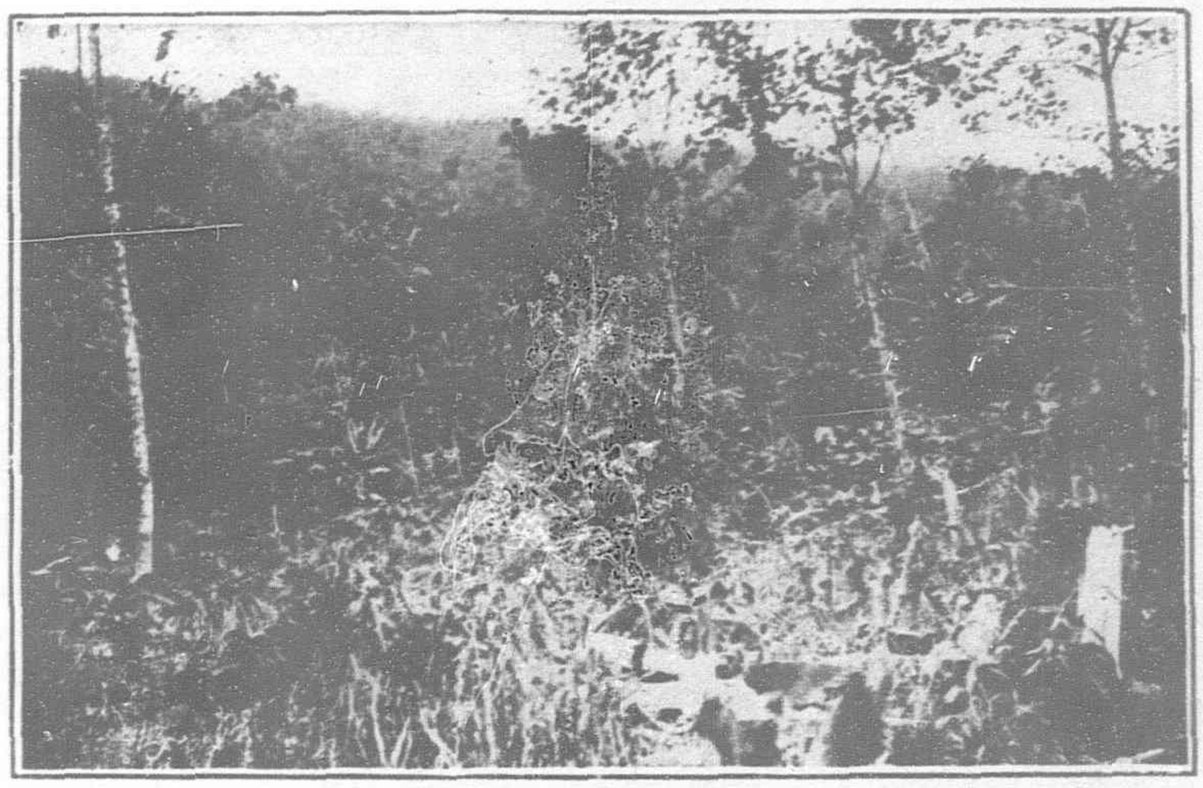
A four story extension to be built on the main factory will be of heavy mill-type construction. This together with other improvements, will cost in the neighborhood of $200,000.

Plans are being prepared for construction work that will entail a cost of $275,000 at Sharon, Pa. The program includes for a five story building for light manufacturing purposes. The structure will be mill type of brick steel construction. A one story building also will be erected for heat treating and galvanizing work.

A $75,000 office building is now under construction in Derry, Pa. The building will be two stories in height. It will be of steel brick construction.



Para Rubber Plantation of Mr. Juan Alcazar, Putiao, Sorsogon



Para Rubber Trees Growing with Abaca in Putiao, Sorsogon

Para Rubber*

By Jose S. Camus

TO-DAY rubber is one of the most important products in the world and with every scientific advance comes a still greater demand and need for more.

Philippine soil as well as climatic conditions compare favorably with those in the Middle East where most of the rubber is produced at present.

There is no reason, therefore, why rubber should not become one of our principal exports.

Para, *Hevea brasiliensis*, the variety most extensively planted in the Philippines and in the Middle East at present, is a comparatively soft-wooded plant with a root system so much weaker than many other trees have that it cannot stand strong winds, much less typhoons. Besides, it requires an abundant and well distributed rainfall, so its planting on a large scale should be limited to places like southern Mindanao and its adjacent islands, where it has been found to do well. Doubtless it would grow in any province, but it would be a risky venture to plant it *on a big scale in places within the typhoon belt and having distinct seasons.*

In a word, while rubber could be grown in all parts of the Islands, there are only certain regions where rubber planting on a commercial scale would be worth while. As it was originally a forest plant, it can grow with very little care. But to make a profit from rubber favorable conditions must be assured.

There are still big areas in the Philippines which would produce rubber as good as, if not better than that produced in the Middle East. The best places are those, as before said, well favored as to rainfall and seldom or never visited by typhoons, such are to be found in southern Palawan, southern Mindanao, and the Sulu Archipelago.

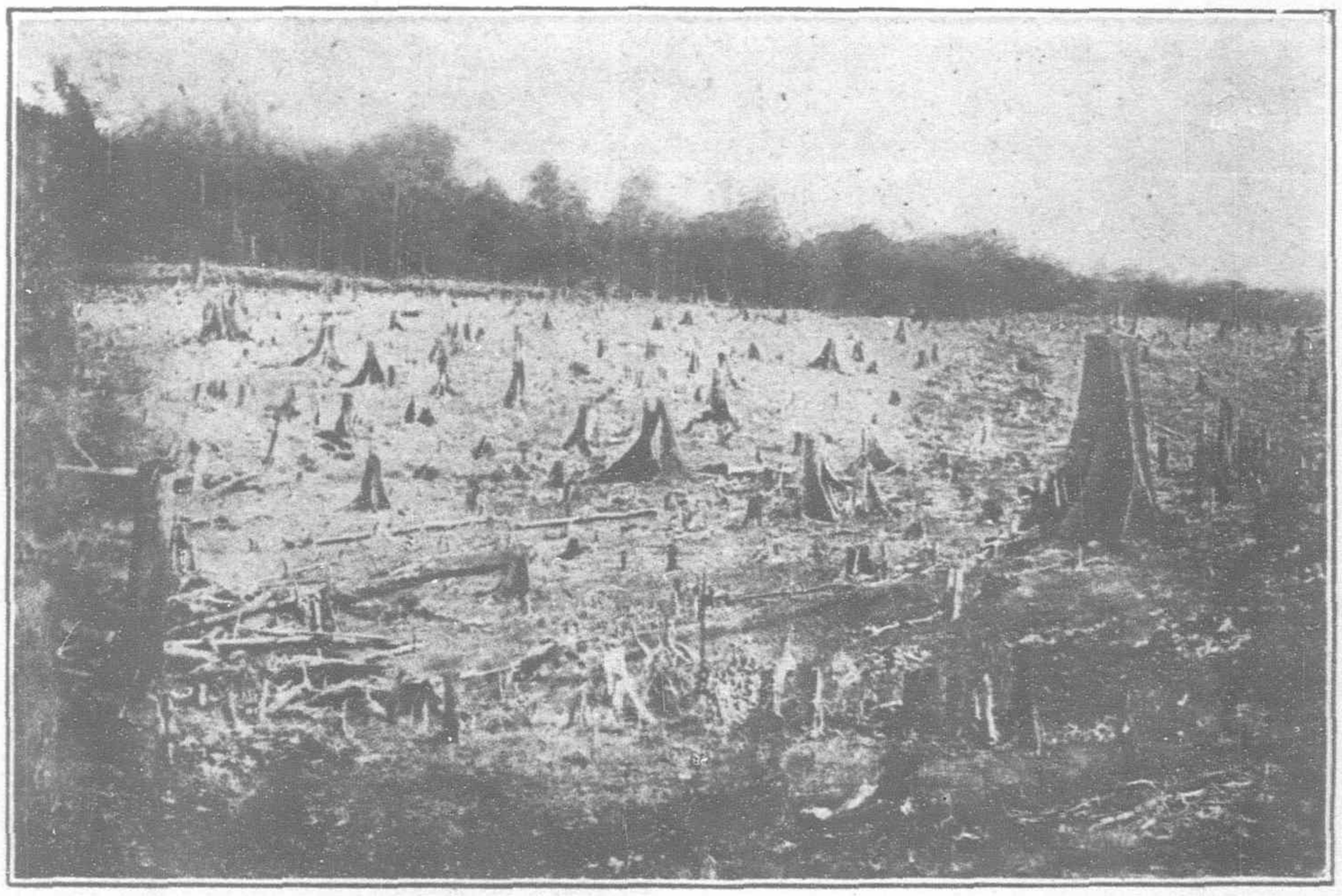
No doubt Para rubber would grow in Luzon or other islands within the typhoon belt, in some valleys well protected from typhoons and where the rainfall is frequent and evenly distributed throughout the year. But it is not believed that the production even in these places would be so high as in the parts of southern Palawan, southern Mindanao, and the Sulu Archipelago to-day known as our rubber region, hence the planting of rubber *as a main crop* in Luzon or in any island within the typhoon area of the Philippines does not seem advisable.

History of Para Rubber

Commercial Para rubber used to be obtained from wild trees in the forests of the Amazon Valley, its habitat; and it is only of late years, since the demand for commercial rubber has increased so tremendously, that it has been brought under cultivation. There are no records to show who discovered the use of rubber or when. It was known to the natives of South America long before Columbus discovered that continent, but its commercial value was not known until 1874, when the art of vulcanization was invented.

But little was planted in the Philippines before 1906 and even now there are only a few big rubber plantations, and these are mostly in Basilan and southern Mindanao. The first tapping for the market was done by a rubber plantation in Basilan in 1914 but since 1900 the natives in Mindanao have been bartering small quantities of wild rubber, such as guttapercha and rubber which they get by cutting down certain rubber producing trees and vines in the forests to the Chinese who market the product in Singapore. The oldest Para rubber now in the Philippines is one in Basilan. It is about 19 years old.

To give an idea of the adaptability of Para rubber in this country the following table is quoted, †



Forest Land Newly Cleared for Planting Rubber

* The Philippine Agricultural Review

† Trade Promotion Series No. 17, 1925, on the Possibilities for Para Rubber in the Philippines.

Young Para Rubber Plantation with "Patani" as a Cover Crop

showing the comparative girths of trees and thicknesses of the bark of Para rubber in Sumatra plantations and in the Philippines, which factors determine the production to a great extent :

Comparison of growth, Basilan Rubber Co. Estate and Sumatra East Coasts.

(Measurements taken from 3 feet from the ground)

Age of trees	Basilan Estate		Sumatra East Coast	
	Average girth	Average bark thickness	Average girth	Average bark thickness
	Inches	*mm.*	*Inches*	*mm.*
2 years	5	—	4	—
3 years	10	3.0	9	3.0
4 years	16	4.2	15	4.1
5 years	21	5.4	19	4.9
6 years	26	6.2	24	6.3
7 years	30	6.9	29	6.7
8 years	34	7.5	34	7.0
9 years	36	7.9	36	7.5
10 years	39	8.1	39	8.2
11 years	41	8.3	42	8.3

Varieties of Rubber

A number of varieties of rubber, such as the Ceara, Castilloa or Mexican rubber, and Para, which last-named has proved to be the most successful variety under our conditions, have already been tried in the Philippines. Some are more resistant to strong winds than Para is, but their yield is much less and the quality of rubber produced is inferior.

Some rubber-producing plants belonging to the same species as rubber are indigenous to the Philippines. There are species of the Ficus family that produce rubber but they are of no commercial value. There are also a number of wild vines producing a kind of rubber used locally, among them those known as "tabango" and "dugtungahas," both of which are found growing in many parts of the islands.

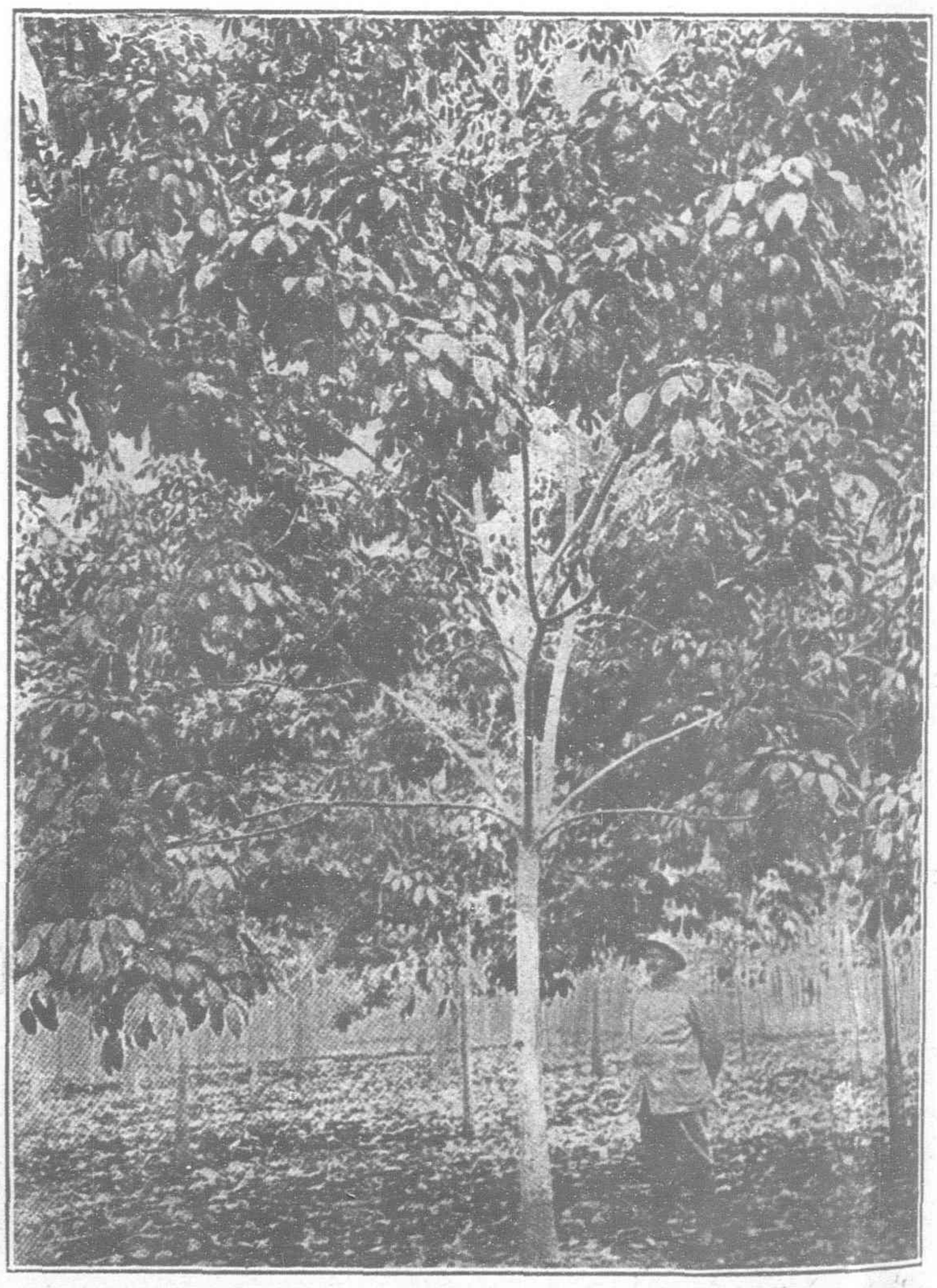
Para rubber attains a height of about 25 meters and a total girth of about 1½ meters. It belongs to the same family as the cassava, the castor-oil and Ceara rubber. The leaves are green in color and trifoliate with lanceolate leaflets. The flowers are produced in panicles and are greenish to brownish in color and have a strong odor. The seeds are produced in pods and have a high oil content, which has also some commercial value. The rubber is produced in the form of a milky latex that flows out when the bark is cut or tapped. At present nobody knows the function of latex in the tree. Some rubber authorities claim that it is stored food, others say it is a waste product or for the protection of the plant.

Climate and Soil

Para rubber will grow in any kind of soil, but it succeeds best in deep rich alluvial or loamy soil, especially on gentle slopes providing good drainage. Very steep hillsides are not recommended for planting rubber, as it will cost more to collect the latex and the land is liable to be eroded unless terraced, which would be very expensive. It does not grow well in a heavy, sticky clay soil, and where water collects. It requires a warm moist climate and at least 1,800 millimeters of rainfall annually and this must be well distributed throughout the year. Regions where the rain does not generally fall in the morning are better adapted to the planting of rubber, as morning rain interferes with the tapping and collection of latex.

Preparation of Land

Generally virgin forest land is planted to rubber, as it is fertile, but the cost of clearing is heavy and parasitic fungi often develop on the decaying stumps, and hence spread to the rubber plants. For this reason rubber trees planted in such land are more readily



Para Rubber, 3 Years and 9 Months old, Under Clean Culture

infected with diseases than those planted in land originally covered with cogon, *Imperata cylindrica*. Fungus diseases seldom occur in cogonal areas and the clearing and preparation does not cost so much.

When forest land is used, the general practice is to cut down the trees and burn them as they become dry, leaving the stumps to decay. The land is then planted without being plowed first. When cogon land is used, the cogon is burned, and the land is generally plowed once or twice to check the growth of the cogon and then planted to rubber with some cover crop. The practice of burning the cogon is bad. It should be plowed under to save the humus. The planting of cover crops on cogon lands is essential to prevent a new growth of cogon.

Methods of Planting

Para rubber is propagated by seeds, cuttings, marcotting and by budding or grafting. The most economical method is by seeds, but of course the best one is by budding or grafting. Although this method seems difficult when planting large plantations, it is easy if the budding orgrafting is done after planting the seedlings in their permanent places. The advantage of this is that the scions to be used can be selected from only those trees known to be productive and so greater yields can be expected.

Seedlings are generally set out in the field when about six to twelve months old, but older seedlings may be planted also if all the tops are cut off and only the stumps left. When too large they are hard to handle, however, and the tree grown from an old seedling very often produces a bent and rough trunk because of the callousing of the cut made before transplanting. Para rubber seedlings can stand rough handling, however, and long journeys better than most other trees.

The seeds should be planted closely in seed-beds first and partly covered with soil and wet gunny sacking or straw, to preserve the moisture until they have germinated. The seedbeds should be under shade or partially shaded As a rule the seeds germinate in from eight to fifteen days. Para rubber seeds have very low vitality, so that unless fresh seeds are planted, a very low percentage of germination will be obtained. For this reason the direct planting of seeds in the field is not recommended. Seeds can only be kept for about forty days unless they are kept in moist sawdust or ground charcoal.

When seeds have completely germinated they should be planted in the field nursery about twenty centimeters apart. In this they should be allowed to grow from six to twelve months and then can be set out in the field.

Sometimes the practice is to plant the seeds in bamboo pots or small baskets as these are more handy to transport to the fields. But as rubber seedlings, as aforesaid, are not very delicate, they may be wrapped in gunny sacking or put in boxes with soil immediately after being dug up from the seedbed, and thus carried into the field. If they are properly removed and wrapped up, the seedlings can be kept a week or so, especially during the rainy season, when it is not possible to plant them at once.

Planting Distances

The common practice in some rubber plantations is to plant seedlings fifteen by fifteen feet (4.47 × 4.47 meters) apart and then the plantation is thinned to thirty by thirty feet (9.14 × 9.14 meters) apart when the trees are about six years old, the least productive trees being sacrificed. The best method, however, is to plant the seedlings from selected stock at a distance of not less than twenty to twenty feet (6.10 × 6.10 meters) apart to begin with and do no thinning. The exact distance apart at which Para rubber should be planted has not been determined up to the present. Rubber planters and authorities on rubber have different opinions on this point. It is certain, though, that the distance has much to do with the yield of the tree as well as the renewal of the bark. In close planting the bark of the trees is generally thin and it requires a longer time before a new bark is formed and consequently it is longer before they can be retapped.

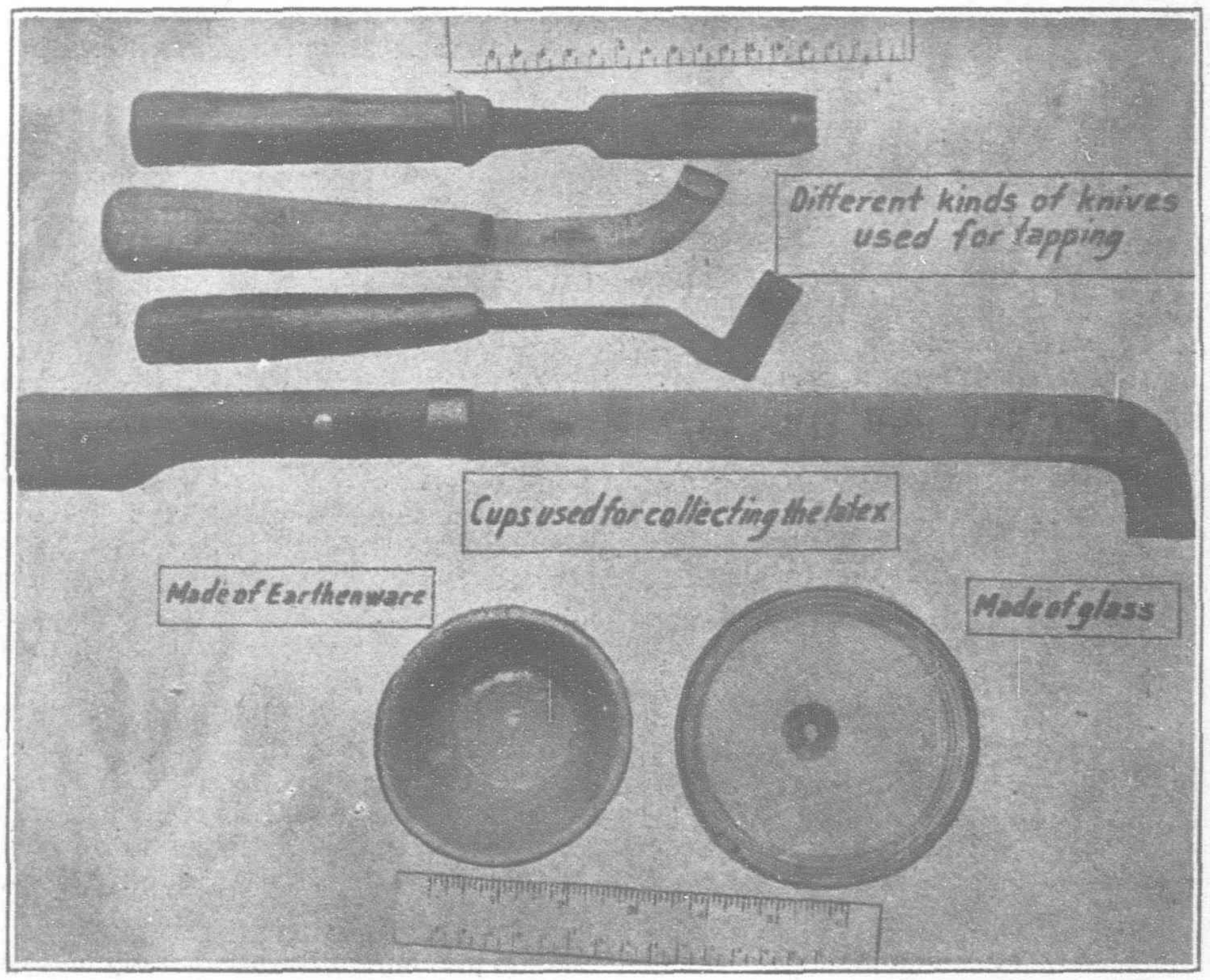
Judging by the experience of the rubber planters in Mindanao, it is best to plant the trees not closer than 6 by 6 meters or more than 277 trees to the hectare, provided the seedlings are selected from good stock. The yield of rubber depends to some extent on the total girth attained by the trees per hectare so that the distance apart at which to plant the trees should be that which will produce the greatest girth per hectare but at the same time leave the right distance between each tree.

The following table shows the number of trees per hectare planted at different distances apart :

Distance in meters*	Number of trees per hectare
4.5 × 4.5	484
5 × 5	400
5.5 × 5.5	335
6 × 6	277
7 × 7	204
8 × 8	156
9 × 9	123
3.5 × 7	408
3.5 × 8	357
3.5 × 9	317
3.9 × 7.2	394
4 × 8	312
6 × 12	137

The size of the holes where the seedlings are to be planted depends on the character of the soil. About 25 × 25 × 50-centimeters holes are sufficient for ordinary-sized plants but the bigger the holes the better, especially in heavy or poor soils. When labor is scarce or expensive, the use of dynamite to dig holes is quicker and cheaper.

In transplanting, the top of the seedlings should be pruned back and all the injured roots cut off. Only strong seedlings should be selected and planting should be done during the rainy season. The holes should be filled with surface soil, especially in poor lands, and then soil packed between the roots.



Different Kinds of Cups and Tapping Knives Used in Rubber Plantations in Mindanao

* Rubber Culture, Bureau Circular No. 90.

Seedlings must not be planted deep in the hole, that is no deeper in the hole than they grow in the nursery, as Para rubber does not like deep planting.

While the seeds may be planted direct in the field as it is done in some rubber plantations, the practice is not advisable because of the low vitality of the seeds, and besides rats and wild pigs are fond of eating Para rubber seeds. The planting of seeds in seed-bed first is therefore a cheaper and quicker method than direct planting in the field, as it might cost considerable to replant vacant hills. Shade trees are not only unnecessary but they invite rubber diseases.

Cultivation

With young plants cultivation is indispensable to keep down the grass and weeds around the trees in order to give the seedlings a good start. This is generally done by plowing between the trees and by planting cover crops, such as patani, *Phaseolus lunatus*, Palawan beans, *Phaseolus calcaratus* Rxb. and the Passion vine, *Passiflora laurefolia*. The seeds of these crops are either broadcasted or planted in hills. The Passiflora produces an excellent cover crop but it does not enrich the soil to the same extent as the patani.

When using patani as a cover crop, the seeds should be planted at the rate of 3 or 4 seeds to each hill 1 to 1 meter apart, depending upon the thickness of the cogon or weeds. They may be broadcasted also. If the growth of the patani is slow and the cogon and weeds try to crowd it out a heavy wooden roller may be run over the field once or twice to aid the cover crop in subduing the weeds. This practice has been found to keep down the cogon without injuring the patani thus giving it a chance to choke out the weeds.

When the trees are big enough, that is, when they are about four to five years old, animals may be turned in to pasture on the grass. Annual crops like upland rice, corn, and root crops may be planted between the rows to keepd own the expenses of the plantation, and at the same time keep the space between the rows cultivated. This does no harm to the rubber trees, but after the fourth year the practice will be impracticable, especially when the trees are planted close, because of the shade that would be produced by the rubber trees.

In Java not only are these crops interplanted with rubber but so is coffee with good results. But this practice is not recommended unless the rubber trees are far apart because rubber produces too dense a shade for coffee plants. The varieties Robusta, Canephora, Uganda, and Quillou, being early maturing varieties of coffee, are the varieties generally planted for this purpose. Under Philippine conditions the Excelsa and Liberian varieties of coffee, and Robusta in high altitudes, may be planted with fair results.

Rubber trees need no pruning, except that dead or diseased branches should be cut off. As a rule, the trees shed their leaves from January to April, but this occurs only with trees over three years old. Younger trees do not shed their leaves at all. While the leaves are falling, that is from January to April, the flow of the latex is reduced but it gradually increases as the fruits form and mature, which occurs generally after the shedding of the leaves.* In Mindanao the flow of latex of Para rubber is at its maximum from September to January, or before the leaves fall. The trees generally flower in May and June and bear fruits during August to October when they are four to five years old.

* * *

Production

The yield of rubber depends upon the selection of the original stock, degree of fertility of the soil, climate, cultivation, absence of diseases, the method of tapping and the general management of the plantation.

The following figures give the average yields per hectare of Para rubber at different ages :†

Age of trees	Kilos of dry rubber
4 years	110
5 years	140
6 years	180
7 years	240
8 years	300
9 years	370
10 years	450
11 years	550
12 years	600 or more

Para rubber are in full bearing when at the age of about 12 years. At this age the plantation, when well managed, should produce at least 600 kilos of dry rubber per hectare.

The length of time a rubber tree is productive depends on the care taken of the plantation and the method of tapping. Under ordinary conditions and with the methods of tapping practiced in the rubber plantations of to-day, Para trees can be tapped at least six tapping rotations, that is, the same side of the tree tapped to-day can be tapped again after six years and so on, and a tree can be expected to give its maximum production for at least 30 years.

Cost of Production

As regards the cost of planting and maintaining a hectare-plantation of rubber, that depends upon the kind of land to be used, kind of soil, labor conditions, efficiency of the management, etc. Under average conditions, it costs about P.150 to P.200 to clear a hectare of forest land and P.40 to P.70 per hectare for cogon land. The staking, digging of holes, fencing and planting material is estimated to cost P.100 to P.140 per hectare. And the care of the plantation (weeding, replanting, etc.) up to the 5th year will run to about P.150 more, or a total of P.445 to bring a hectare-plantation of forest land to the bearing age and of P.325 for cogon land. These estimates will, of course, vary in accordance with local conditions.

It costs, then, about P.1.60 (assuming that there are 277 trees in a hectare) to bring a tree to the fifth year or bearing age. And a tree will the first time produce about .5 kilo of dry rubber, valued P.1.32 (P.2.64 per kilo, U. S. quotation for 1925.) At the age of 12 years, when a rubber tree is at its optimum yielding capacity, each tree yields about 2.16 kilos of dry rubber, valued at P.5.70, which means about 600 kilos per hectare of 277 trees, valued at P.1,578.90 (cost or rental of land, maintenance, production, and manufacture not included). These figures are, of course, based on the present high price of rubber.

Tapping

As the value of the tree depends on the amount of latex produced the process of tapping has to be such as to give the maximum latex from each individual tree and to effect this it is highly essential that this operation should be very carefully done, so that while getting the maximum quantity of latex there shall be a minimum amount of damage done to the trees. Furthermore, the amount of harm done to a tree by tapping determines the time when it can be retapped. The value, and even the life of the tree, may hang on the way the tapping is done, as a cut may serve as good breeding place for diseases and pests and sometimes it does not callous smoothly, so that the tree may become not tappable, hence worthless.

As a rule tapping may be done when a tree has produced a girth of from 20 to 24 inches at 3 feet from the ground, or when it is about 4 or 5 years old, when growing under normal conditions. Too young trees should not be tapped, as the latex makes a poorer rubber than that from old trees, since it contains too much water and resin ; and besides the quantity of latex produced from each young tree oftentimes is so little that its collection does not pay.

There are several kinds of tapping implements used and each has its advocates. Tapping is generally done by a downward cut, the wedge-shaped portion of the knife penetrates into the trunk of the tree and produces a thin wedge-shaped piece of bark with very little difficulty. The tapping should not be done deeper than the cambium layer, as it would injure the tree and check the upward flow of the sap as well as the growth of the tree. As a rule a tree can be tapped daily, but generally every other day, until the circle reaches the base of the tree, starting from about 3 feet from the ground.

It does not pay to tap higher than 3 feet from the ground, for the latex obtained above 3 feet contains a greater percentage of resin and water than that from the base of the tree.

For each tree a collecting cup of about 150 to 200-cubic centimeter capacity, a cup-holder made of wire, and a spout should be provided to collect the flowing latex. The cups are made of

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* Report on the Rubber Industry in Mindanao, Bureau of Agriculture, 1925.

† From Bureau Circular No. 90 on Rubber Culture.

glass, metal, earthenware, aluminum, etc. Sometimes, coconut shells or bamboo joints are used but the glass cups are best as they can be cleaned easily, which is essential to produce white rubber and to prevent premature coagulation. The main tapping operation as now practiced in rubber plantations in Basilan and Mindanao consists in cutting off daily or every other day a strip of bark about 1/16 to 1/18 of an inch thick. After the incisions have been made, a small wet rattan brush is sometimes run over the incision to facilitate the flow of the latex.* When tapping the tapper should carry a can or bag for the bark shavings, a small can of water and two buckets, one for pure latex and the other for the cup washing. A good tapper can generally do about 300 to 500 trees between 5 and 9 o'clock in the morning. This latex has to be brought to the coagulating plant immediately after tapping to prevent premature coagulation. The same man should always tap the same section of the plantation, and a sharp knife should always be used and the buckets should be absolutely clean.

The amount of latex obtained generally increases day by day until about the seventh day and then gradually decreases, conditions on the plantation being normal. Tapping may be done either in the morning or in the evening, but it is better to begin at daylight because the flow of the latex is then more abundant, especially if it has rained during the night. If it has rained the trees must be allowed to dry before being tapped as damp bark will not cut clean and besides the latex will not flow freely on wet bark. It is not advisable to tap in the middle of the day when it is hot.

There is no rule regarding the time which should elapse between successive tappings, for the damage done to the tree by tapping and the condition of the trees as well as local conditions exercise a great influence. But it generally takes about six years to renew the bark so that it will be ready for tapping again.

Formerly different methods of tapping were practiced in the rubber plantations in Mindanao. Some cut a "V" every day around one-half of the circumference of the tree, while others cut a spiral across one-half, one-third or one-fourth of the circumference of the trunk and at an angle of about 30 degrees. But at present the spiral method is regarded as the best, since it is not only the amount of latex extracted that has to be considered but the cost of tapping and the extent of damage it does to the tree.

Care of Latex

In order to produce a high-grade of rubber it is very important that the latex cups and buckets be thoroughly cleaned every day as they may otherwise harbor organisms which would cause premature coagulation. Of course adverse climatic conditions, too great a distance between the plantation and the rubber coagulating plant, method of transporting the latex and other factors are also responsible, to a certain extent, for premature coagulation. It has been found in some of the big rubber plantations that a small amount of anhydrous sodium sulphite put in the latex prevents premature coagulation. This is done by dissolving one kilo of it in 25 liters of water. A few drops of the solution are all that need to be put in the latex.

In order to facilitate and reduce the cost of cleaning the cups and pails, it is important that latex cups and buckets with a smooth surface inside should be used in rubber plantations.

Sometimes good rubber can not be produced because too much water has been added to the latex, as is the practice in some plantations in the Middle East. Putting a little water in the cups when tapping prevents coagulation but when there is too much or it is dirty a poor kind of rubber is produced.

Immediately after the latex is collected it should be brought to the factory or coagulating plant—the sooner it is treated the better—as if it is not treated right away coagulation will take place and a poor kind of rubber will be produced. And for this reason it is highly important that the factory should be erected near the plantation.

Upon arrival at the coagulating plant the product is classified into first-grade latex, cup and pail washings, bark shavings, etc. These should never be mixed but treated separately, as they sell at different prices.

First-grade latex produces†	..	75 per cent. of rubber.
Cup washings produce	..	10 per cent. of rubber.
Bark shavings produce	..	4 per cent. of rubber.
Other waste rubber ..	..	11 per cent. of rubber.

Commercial rubber is produced by coagulating the latex by adding some acid, generally acetic acid. As a rule one part of the acid to twenty parts of water is used. Of this solution it requires one liter to coagulate fifty liters of dilute latex. The coagulation must be done in glazed jars or tanks and the coagulated mass put through a creping machine. Then it is dried under shade. In big plantations it is necessary to have a shed-house purposely for drying the coagulum, which must be done under shade, for when it is exposed to direct sunlight the resulting rubber is "tacky" and of a poor quality. It generally takes about 20 days to make crepe rubber by this process. Before coagulating, the latex must be strained first to free it from all dust and other foreign material.

Another method of preparing rubber is by smoking the rubber coagulated as described above, after it has been flattened out to a thickness of about one-eight of an inch in a ribbed or diamond press. Then the rubber sheets are cured or dried in a smoke-house, which process takes about fifteen days, depending upon the weather conditions. Rubber produced in this way does not command so good a price as crepe rubber.

In small plantations the latex may be prepared for the market by coagulating it in the manner described and then pressing the coagulum by means of rolling pins, wooden rollers or bottles to get out the water and kept under shade until thoroughly dry. The coagulation may be done in porcelain pans or wooden boxes made for the purpose or in any similar receptacles.

Community Planting

The rubber we export at present is produced on a big scale in Mindanao and Basilan, and this means a large amount of capital.

Planting rubber is not so hard, neither does it cost so much as planting some of the annual crops, like sugar cane; but the planter or manager must not only understand all about raising rubber but must give the trees unremitting attention, it being a year-round crop, in order to make a real success of the enterprise.

And there is another point that must be considered: the fact that the value of the output depends entirely upon the foreign market. It is therefore inadvisable to depend upon it to the exclusion of other crops, especially if the plantation is not within the rubber region. It is better in any event to have other crops as sources of income in a case of failure with rubber or a fall in prices. In Luzon or other islands north of Mindanao that are in the typhoon belt the planting of rubber only as a secondary crop is recommended.

In Mindanao and Basilan it has been found a good idea to combine rubber with coconuts and cattle raising. Abaca and coffee might also be planted with rubber with good results. Combination planting is advantageous, too, in that the same labor force can be used in the coconut, abaca or coffee plantations whenever not working in the rubber grove.

It takes considerable capital to run a big rubber plantation, as aforesaid. So if no great amount of capital can be invested no more trees should be planted than can be properly taken care of by the owner.

But, like other crops, rubber can be produced with small capital —about one-third of the world's rubber to-day is produced by small farmers. In the Philippines, it would seem advisable for such small planters to plant rubber *under a community system*, that is, each planter to plant as many hectares as he deems expedient to devote to the production of rubber and the community to put up its own coagulating plant, just as some of our sugar planters join forces to erect centrals to take care of their cane.

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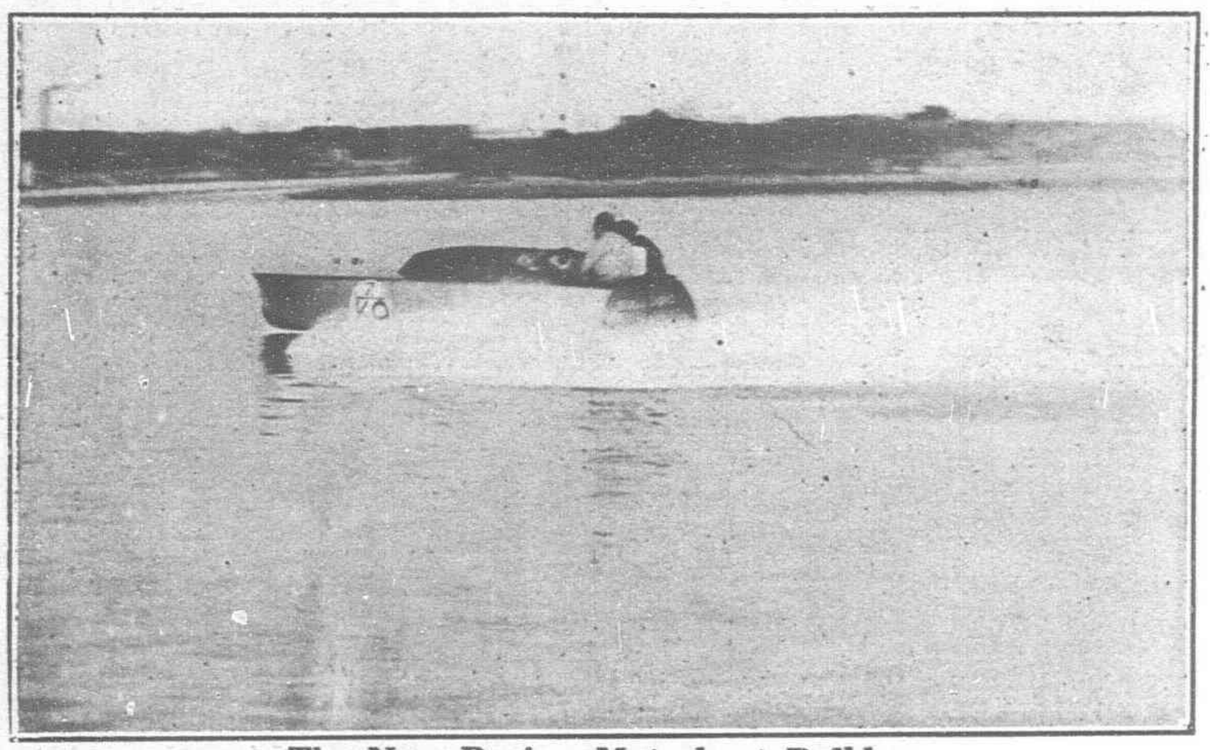
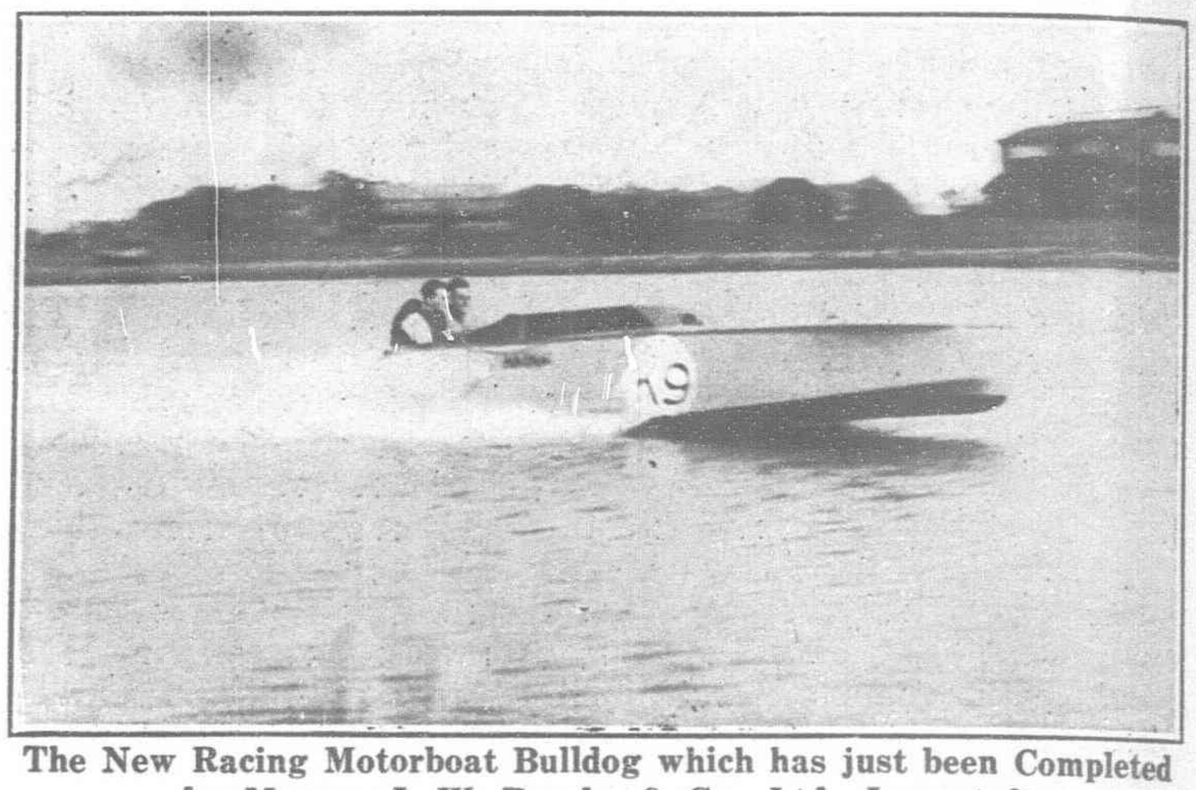
* Report on the Rubber Industry in Mindanao, Bureau of Agriculture, 1925.

† The Preparation of Plantation Rubber, by Morgan and Stevens, 1922.



The New Racing Motorboat Bulldog.



The New Racing Motorboat Bulldog which has just been Completed by Messrs. J. W. Brooke & Co., Ltd., Lowestoft.

New British Racing Motorboat

THE accompanying illustrations are of the new racing motorboat *Bulldog*, which has just been completed by J. W. Brooke & Co., Ltd., Lowestoft, for Harcourt-Smith and High Tevis.

The new hull is a single step hydroplane with a length of 17-ft., and a beam of 5-ft., planked in mahogany on mahogany frames. Seating is right aft with a car type wheel effecting steering on the port side, controlling a forward rudder, forged from 90-ton steel. A turtle type deck extending to slightly aft of the center is provided, with suitably located cowls which give supplementary cooling to the engine at speed.

Improvements both in stability and speed have been effected in the construction of the new hull of James A. Smith design. The engine, developing 90 h.p., at 5,000 r.p.m., is the identical unit which powered a boat which last year established a record speed of 38.175 knots per hour. The engine last year accomplished nearly 100 hours, mostly at racing speed, before dismantling.

Before being installed in the hull, minor improvements were carried out to the unit, including a supercharger of modified design coupled to the engine by a laminated steel spring drive in place of the previous Hardy type coupling. The engine is coupled to a 2-1 reduction gear forward and driving back to a forged steel propeller.

Arrangements for the allowance of end play are effected between the engine and the reduction gear forward of the motor, the intermediate shaft being spliced at the end. By this means the coupling to the reduction gear is keyed and lateral movement is allowed for.

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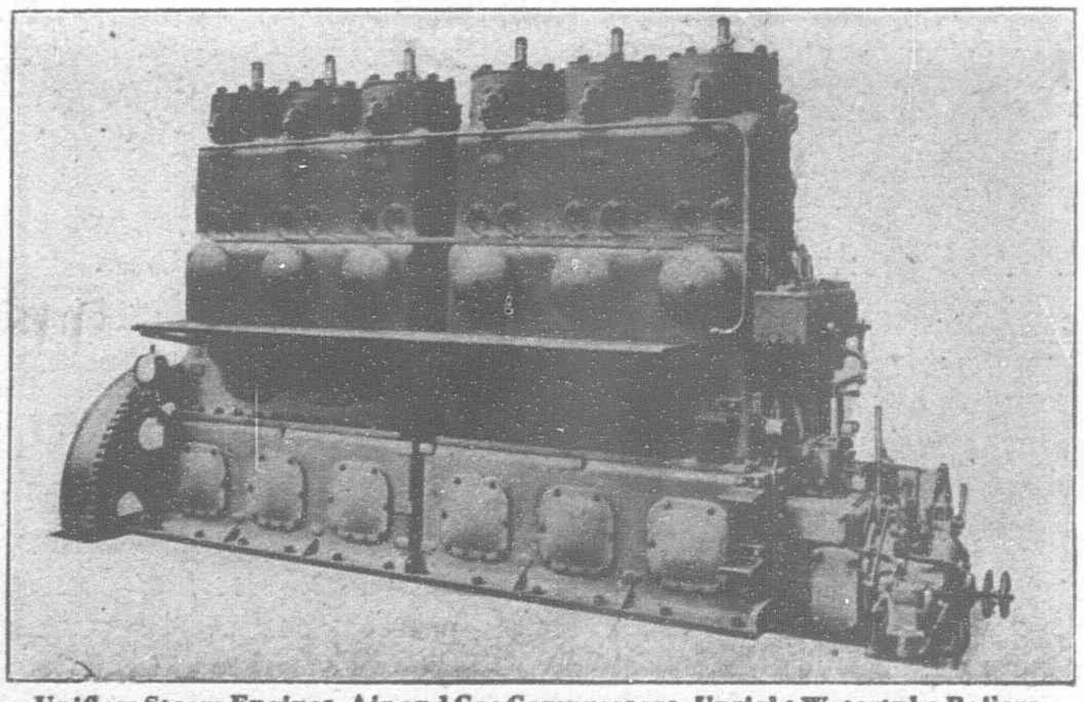

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